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Prof. Dr.-Ing. Rolf Lammering
Vice President / Research

Editorial Office

Research Office
Helmut Schmidt University /
University of the Federal Armed Forces Hamburg
Holstenhofweg 85
22043 Hamburg, Germany
phone: +49 40 6541 2213
email: forschungsbuero@hsu-hh.de

Layout, typesetting & printing

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Foreword

Dear Readers,

In addition to research and teaching, knowledge transfer increasingly is being recognized as a third mission for universities. This commitment encompasses, but is not limited to, both technology transfer and continuing education, and it requires a further opening of universities towards society.

Such openness and the concomitant dialogue with society at large and its diverse parts tally well with the strategic perspective of Helmut-Schmidt-Universität (HSU/UniBw H). Our mission statement states that “the university lives the idea of education through science. Like its founder and namesake, we understand science as ‘a search for knowledge committed to social responsibility’”. In 2018, we began an ongoing process of implementing this basic idea on our campus.

Interaction is based on communication, and so this annual research report should be understood as a contribution to science communication.

Scientific knowledge arises through the work and interaction of scientists in departments. HSU/UniBw H has four strong faculties – Economic and Social Sciences, Electrical Engineering, Humanities and Social Sciences, as well as Mechanical and Civil Engineering – with 125 professorships and about 500 scientists. Their efforts, aspirations and successes are documented in this research report.

In response to the challenges of an increasingly complex world, science and knowledge production have evolved to be of an interdisciplinary nature, and so our research transgresses departmental boundaries in many cases. This is a particular feature of HSU/UniBw H, which we emphasize in our work and proudly document in the present report. Of course, our research does not stop at our campus boundaries either.

We are also proud of the fact that every year we are able to support young scientists with their own project ideas after a selection process, and in this way open up new fields of research. However, the emergence of young scientists cannot begin with junior scientific staff, but needs to start with the students. We believe that a close connection to research is very profitable for teaching, which is why students participate in our research projects, and research content finds its way into teaching.

Despite the progress of digitalization, we present our second research report not exclusively in electronic form, but also in print. This is to reach as broad a public as possible.

In any case: This report is only an appetizer! Go to our website or follow us on Facebook or Twitter to learn more about our research. Also feel free to contact us directly - our scientists appreciate your interest.

Homepage:

<https://www.hsu-hh.de/>

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<https://twitter.com/hshamburg>



Prof. Dr. rer. pol. Klaus Beckmann
Präsident der Helmut-Schmidt-Universität /
Universität der Bundeswehr Hamburg

Foreword

Dear Readers,

This is by now the second research report presented by Helmut Schmidt University / University of the Federal Armed Forces Hamburg. The main objective of this report is to provide information in a brief and concise form about significant developments at the University in 2019, specifically in the area of research. Thus, the information is only a selection and is by no means intended to provide a complete picture of the wide range of research activities.

Our university can look back on a successful year 2019. It is very gratifying that this success finds its expression in very different ways: In the support for a PostDoc for a stay abroad of several months, in the establishment of a Heisenberg Professorship by the Deutsche Forschungsgemeinschaft (DFG), in the support of numerous research projects by public and industrial third party funders.

The scientists of our university also contributed to the visibility of the university and thus to its success through their active participation in numerous scientific institutions as well as their activities in editorial boards of renowned journals. On the other hand, the visibility and attractiveness of our university is demonstrated by the fact that we welcomed numerous visiting scholars in 2019. We have included these activities and events in our research report, as well as the organization of professional conferences.

What would university research be without publications? In 2019, a large number of publications were produced in all of our research areas and published in renowned journals and also presented at international conferences. A small selection of these publications is cited in this research report.

The research report takes up the structure of the university and gives information from the faculties section by section. At the end, however, there are two sections outside this structure. On the one hand, we report on the cooperation with colleagues from other scientific institutions in the metropolitan region of Hamburg within the framework of Hamburg's state research funding. On the other hand, we provide information about the numerous events held in 2019 after the university has won the competition "One University - One Book" organized by the Stifterverband deutsche Wissenschaft, the ZEIT publishing house and the Klaus Tschira Foundation.

We would be very pleased if we could provide you with an interesting selection of research projects in this report and thereby give you a first insight into the multifaceted research landscape of our university. And if we have even aroused your curiosity a little, that was certainly our intention. Then please do not hesitate to contact us! We will be happy to deepen the topics with you!



R. Lammering
Prof. Dr.-Ing. Rolf Lammering
Vice President / Research

Faculty of Economic and Social Sciences

Overview

In 2019, members of the Faculty of Economics and Social Sciences at Helmut Schmidt University – University of the Federal Armed Forces Hamburg have again carried out research on a wide range of issues, including economics, business administration, law, public management, math and statistics, as well as many interdisciplinary projects, reaching also out to psychology, technology and engineering. By successfully contributing to research and education, and by offering studies which are in high demand, the Faculty has even been able to expand its activities. The expansion becomes inter alia visible in a number of newly established professorships which complement those already established and which allow for straddling subfields and widening the scope of research questions as well as methods.

Research involved individual research projects, but also active membership in outstanding research clusters, many of which in collaboration with researchers at other Universities (both national and international) as well as research institutes. The fact that third party funding includes such diverse sources as the German Science Foundation, the Federal Employment Agency, the Ministry of Defense, the German Foundation for Peace Research, the European Regional Development Fund, and the City of Hamburg (e.g. Faculty for Economics, Transportation and Innovation) is witness to how well the Faculty and its members are embedded into the scientific community. A short outline of selected research projects, advances, publications, and activities at various professorships gives an impression of the achievements in 2019. Notably, rather than delivering a complete picture, the mentioning is to exemplify the diverse research projects under way at the Faculty.

News from Research

At the **Professorship for Public Administration and Management**, research continues to be focused on management of organizations within the public sector. Current research projects explore, by means of experimental methods, public decision-making, with insights into the behavior of actors in the context of (budget) negotiation processes. Other projects are concerned with developing a maturity model of government finance management. With her expertise in managing organizations in the public sector, the head of the Institute, Prof. Dr. Christina Schaefer, is also involved in consulting, thus bridging research and implementation in public sector management. With the aim of strengthening the link between research and consulting, she initiated a formal cooperation with the University of Applied Labor Studies (HdBA) in Schwerin. In 2019, she has successfully applied and received funding (76.559,73 €) from the Federal Employment Agency (Bundesagentur für Arbeit) for a project on gender-related issues at the workplace and particular occupations („Geschlechterforschung Controllerinnen“). The project started in May 2019 and continues through 2021.

The **Professorship of Quantitative Methods in Economics**, established a three-year project on „Coherent Forecasting and Risk Analysis for Count

Processes“ (covering the period 2018-2021), and funded by Deutsche Forschungsgemeinschaft (DFG) – Projektnummer 394832307. In addition, Christian H. Weiss kicked off a one-year project “Model Diagnostics for Count Time Series” (running from July 2018 to June 2019), which obtained funding by a seed grant of the HSU. At the 14th Workshop on Stochastic Models and Their Applications, he held an invited session, and he was invited to present latest results of his research at Universitat Politècnica de Catalunya in Barcelona and at the University of Bielefeld. Further talks included presentations at the DAGStat conference and the ENBIS conference.

In 2019, junior researcher Dr. Christoph Harig at the **Professorship for International Relations and Regional Governance** obtained funding from the Deutsche Stiftung Friedensforschung for a pilot study on the relation between stabilizing missions by the United Nations and local military operations in India („Wechselwirkungen zwischen Stabilisierungsmissionen der Vereinten Nationen und internen Militäreinsätzen in Indien“), which is scheduled to start in 2020.

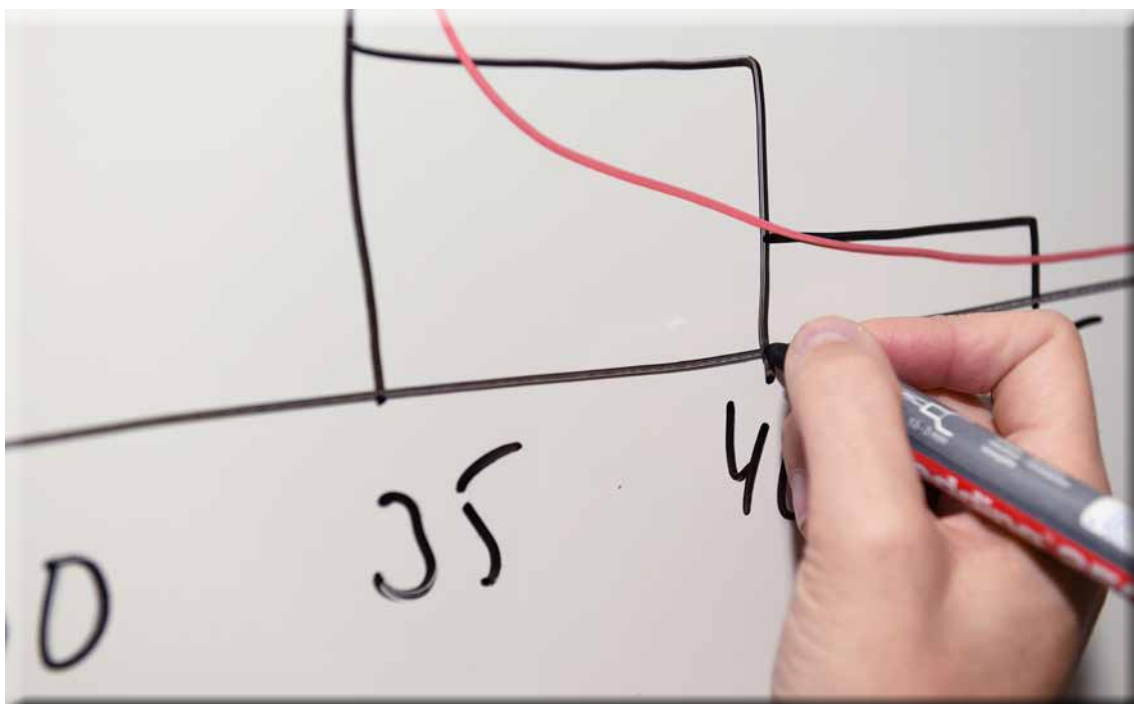
At the **Professorship of International Economics and Economic Policy Research** two research projects were initiated and further developed

in 2019. A first research project focusses on the future of the international economic order, in particular, the world trading system, which has been very much challenged in the last couple of years by unilateral deviations from international agreements. Preliminary results have been, inter alia, presented at the meeting of the Canadian International Trade Study Group (CITSG), organized by the University of Calgary and at the Canadian Economics Association Meeting in Banff (Canada). And, research on these matters was carried out via a joint project with colleagues at the Hoover Institution/Stanford University. The research overseas and the reconnection with research contacts at Stanford, which had been established in former times in DFG-funded research, also allowed to deepen work on the nexus between trade, technology (i.e., ICT, AI), and economic policy. Relevant issues were discussed at the CASBS, the GSB, the FSI, the Hoover Institution, and with other members of the Stanford Professional Women group. A second research project, which builds on previous work at the Professorship on technology (automation), globalization and subjective wellbeing was finalized in 2019, with major results documented and published in the main field journal on interdisciplinary research in subjective well-being.

HSU research also specifically added to the knowledge of what makes for a successful regional economic cluster. The Metropolitan region Hamburg is a respected center of successful cluster development. The research project Co-Learning Space for Hamburg's Clusters (3 years, €1,165

million, funded by the ERDF and FHH), led by the **Professorship of Business Administration, in particular Organizational Theory**, currently develops and tests collective approaches and measures for the further professionalization of the management of Hamburg's clusters. In addition, the project partners are developing innovative cluster bridges (cross-clustering) in an accompanied exchange. The project strengthens cross-cluster cooperation and creates new platforms for exchange and interaction. With the help of an efficient and effective networking of the partners, knowledge development and knowledge transfer will be strengthened across the clusters and thus important innovations will be advanced faster.

At the **Professorship for Business Administration, in particular Marketing**, research in 2019 concentrated on two fields in particular, consumer neuroscience and personnel marketing for the German Federal Armed Forces. As to consumer neuroscience, the team worked on the application of implicit methods in marketing research and ethical implications in consumer neuroscience as well as the adaptation of implicit methods in quantitative surveys. As to the personnel marketing project, which received by the German Ministry of Defense, several subprojects, including a PhD-Thesis, had been completed in 2019. Further projects under way are "Where to Look at While Choosing? The Repertory Grid Technique Supplemented by Eye Tracking" (C. Mühlbach), "Application of Neuroscientific Methods to Organizational Behavior and Public



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Management” (D. Hensel), “Factors Affecting Consumers’ Perceived Risk Towards Conducting Remote Mobile Payment” (P. Khazaeinejad), “Ethical, Social and Fair Consumption in Fashion: a Behavioral Analysis Based on the Theory of Planned Behavior” (L. Arslan), “Self-perception as a Determinant for Gender” (A)typical Career Choices (B. Langhinrichs), and, “Media Streaming - Revolution or Evolution? Success Factor Analysis of Subscription-Based Streaming Services” (H. Heikes). Team members presented their most recent research at several renowned conferences and meetings, such as, for instance, the Annual Meeting of the German Academic Association of Business Research in Rostock, the 79th Annual Meeting of the Academy of Management in Boston (USA), and the 18th Gender and Education Association Conference, in Portsmouth (UK).

The head of the **Professorship for Political Science, in particular International Security and Conflict Studies**, Prof. Dr. Anna Geis, was successful in applying for a collaborative research grant of the Free and Hanseatic City of Hamburg (Landesforschungsförderung). Funds of nearly 1 million Euros have been awarded for the research training group “Democratising Security in Turbulent Times”, scheduled to start in October 2020. It is an interdisciplinary collaboration between researchers from the University of Hamburg, the HSU/UniBw H, the Institute for Peace Research and Security Policy at the University of Hamburg (IFSH) and the German Institute of Global and Area Studies (GIGA). The HSU/UniBw H participates with one 65% research associate position. And, in 2019, Anna Geis and her team member Maéva Clément also obtained a HSU/UniBw H seed grant for the project “Terrorism and the public(s): Reactions to terrorist attacks and escalation dynamics”.

In January 2019, Dr. Jan Gertheiss took over the **Professorship of Statistics and Data Science**. In the meantime, a couple of PhD and PostDoc positions have been filled. On the one hand, the Statistics and Data Science group is focusing on application-driven methodological research, particularly regularization and ensemble methods for categorical, functional and high-dimensional data. On the other hand, the team offers consulting services on statistics and data analytics to collaborators from, e.g., economics, social and life sciences. In November 2019, a DFG-funded project got started on statistical methods and models for dependent categorical, in particular ordinal data. With the aim of deepening the exchange of research ideas and collaborate efforts, Prof. Gertheiss initiated a kick-off meeting (host-

ed at HSU) for building a network and promoting collaborations among statisticians from the University of Hamburg, UKE, and HSU.

A major research project on the populist challenge in parliament entitled „Die populistische Herausforderung in den Parlamenten“ of the **Professorship of Comparative Government** has obtained funding (with a total of 376.226 €,) from the Deutsche Forschungsgemeinschaft (DFG) to carry out research in 2019-2021, with IPs Marcel Lewandowsky (HSU Hamburg), and Andreas Blätte (Universität Duisburg-Essen), Jochen Müller (Universität Greifswald), Christian Stecker (MZES Mannheim). Members of the Professorship of Comparative Government have presented research at a multitude of international conferences and meetings, such as the SPSA Annual Conference and the #eurocss Symposium in Zurich (Switzerland), the ECPR General Conference in Wrocław (Poland), the Annual Meeting of the American Political Science Association in Washington D.C. (USA), the Colóquio Internacional de Direito Político e Eleitoral in Salvador de Bahia (Brazil), the 4. China-CEEC-Forum in Peking (VR China), the ECPR Joint Sessions Workshop in Mons (Belgium) as well as at the Assembleia da República (Portugal). Prof. Florian Grotz, head of the Institute, served, inter alia, as a referee for applications of funding for the Fonds de la Recherche Scientifique (F.R.S.-FNRS, Belgien) and the Schweizerischer Nationalfonds (SNF), and as reviewer for a number of academic journals, e.g. East European Politics, Political Studies, Electoral Studies. Dr. Lewandowsky, who had been a long-term member of the team, had been on leave for the summer term of 2019 while serving as deputy professor for Public Policy at the NRW School of Governance, University of Duisburg-Essen. As of September 2019, he assumed a visiting assistant professorship, which is sponsored by the DAAD German Studies Program at the University of Florida, Gainesville (USA).

The **Professorship of Political Science with a Focus on International Politics** has organized two panels at the international congress of the research consortium Middle East (DAVO) in Hamburg. In panel A, participants discussed special questions with reference to migrants as a vulnerable group with particular focus on identifying what contributes to their vulnerability. A second panel (panel B) was about the diversification in responsibilities as to migration policies, this included genuine European questions as well as issues related to multi-level systems within Germany. Members of the team currently work on an edited volume on both of these issues and

the various dimensions of vulnerability, thus trying to develop a unifying research perspective. The book, with Prof. Annette Jünemann, Nicolas Fromm, and Hamza Safouane (Osnabrück University) as editors, will be published in 2021 by Springer Press VS in their series on integration and migration („Studien zur Integrations- und Migrationsforschung“). Research on related issues has been presented at a number of major international conferences in the field, of which the British Society for Middle Eastern Studies Annual Conference (BRISMES) at the University of Leeds (UK), the 6th Annual International Conference on Social Sciences at Al-Akhawayn University (Morocco), the Alfried Krupp Wissenschaftskolleg, the 6th European Workshop in International Studies 2019 in Krakow (Poland) deserve mentioning. Aiming at getting a more detailed grip on migration data, team members also participated in field research in Senegal in 2019.

At the **Professorship for Public Economics**, deputy professor Fabian Paetzel and his team worked on three main topics in the area of public economics: (1) redistribution/ inequality/ reforms and framing, (2) social preferences, social identity and fairness, and (3) reputation systems, markets, cooperation and efficiency. The research approach combines microeconomic theory, behavioral economics, game theory and experimental methods (online- and mostly lab-experiments). Methodologically, the research approach explicitly draws on various sub-disciplines in the social sciences, in particular psychology, political science and sociology (besides economics). Working papers in 2019 deal with topics like online reputation systems, preferences for redistribution, competition and cheating, morality of markets and need-based justice. The paper “Power illusion in coalitional bargaining: An experimental analysis” by Maaser, Paetzel and Traub was published in 2019 in the journal of *Games and Economic Behavior*, the top field journal in game theory.

At the **Professorship for Economics, especially Behavioral Economics**, Stefan Traub is the spokesperson of the **DFG-funded research group FOR 2104** “Need-based justice and distribution procedures”. In his subproject “Need-based redistribution as a social contract”, he and his team members analyze theoretically as well as by means of laboratory experiments the economic incentive effects caused by the welfare state in the context of productive investment decisions, such as human capital investments. In the current second funding phase, the focus of

the subproject is on the impact of heterogeneity on risk-taking and redistribution in the welfare state. Besides working on need-based perspectives and implications for the welfare state, Prof. Traub is a member of the **University of Hamburg’s Cluster of Excellence** “Climate, Climate Change, and Society (CliCCS)”. Together with the **Professorship for Political Economy and Empirical Economics** (Prof. Michael Berlemann), he supervises a behavioral economics project on the impact of uncertainty and disaster risk on individual cooperation and economic growth.

Selected Publications

D. Briskorn, F. Jaehn, A. Wiehl

A Generator for Test Instances of Scheduling Problems Concerning Cranes in Transshipment Terminals.

OR Spectrum, 41, 45-69, (2019)

S. Destradi, K.-M. Kenkel

Explaining Emerging Powers’ Reluctance to Adopt Intervention Norms: Normative Contestation and Hierarchies of Responsibility.

Revista Brasileira de Política Internacional, 62 (1), e002, (2019)



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S. Destradi, J. Plagemann

Populism and International Relations: (Un)predictability, Personalisation, and the Reinforcement of Existing Trends in World Politics.

Review of International Studies, 45(5), 711-730, (2019)

S. Destradi, J. Plagemann

Populism and Foreign Policy: The Case of India.

Foreign Policy Analysis, 15 (2), 283–301, (2019)

B. Dluhosch, D. Horgos

International Competition Intensified: Job Satisfaction Sacrificed?

Social Indicators Research, 143, 479-504, doi: 10.1007/s11205-018-1982-4, (2019)

J. Donaubauer, D. Herzer, P. Nunnenkamp

The Effectiveness of Aid under Post-conflict conditions: A Sector-specific Analysis.

Journal of Development Studies, Vol. 55 (4), 720-736, (2019)

F. Grotz, M. Lewandowsky

Promoting or Controlling Political Decisions? Citizen Preferences for Direct-Democratic Institutions in Germany.

German Politics, 29, (2), 180-200, doi: 10.1080/09644008.2019.1583329, (2019)

Grotz, F.

The Mixed-Member Proportional System: A Model for Electoral Reform?

Revista Populus 5, 95-107, (2019)

A. Hansen, D. Meyer

ANFA und das Zahlungsverkehrssystem TARGET2: Zwei Konzepte zur national-autonomen Geldschöpfung im Eurosystem. Ifo Schnelldienst, 72(13), 12-22, (2019)

A. Hansen, D. Meyer

ANFA und die Anleihekaufprogramme – Gefahr für die Unabhängigkeit der EZB? Zeitschrift für das gesamte Kreditwesen, 72(21), 20-25, (2019)

C. Harig

Soldiers in Police Roles.

Policing and Society, 30, (9), 1097-1114, doi: 10.1080/10439463.2019.1650745, (2019)

C. Harig

Re-Importing the ‘Robust Turn’ in UN Peacekeeping: Internal Public Security Missions of Brazil’s Military.

International Peacekeeping, 26(2), 137-164, (2019)

F. Hattke, J. Hattke

Lead by Example? The Dissemination of Ethical Values Through Authentic Leader Inspiration.

International Journal of Public Leadership, 15(4), 224-237, (2019)

F. Hattke, D. Hensel, J. Kalucza

Emotional Responses to Bureaucratic Red Tape.

Public Administration Review, 80(1), 53-63, doi: <https://doi.org/10.1111/puar.13116>, (2019)

D. Herzer

A Note on the Effect of Religiosity on Fertility. Demography, 5(3), 991-998, (2019)

D. Herzer

The Long-run Effect of Aid on Health: Evidence from Panel Cointegration Analysis. Applied Economics, Vol. 51 (12), 1319-1338, (2019)

D. Herzer, K. Nagel

The Impact of Adult and Non-adult Mortality on Development: Two Centuries Evidence from a Panel of Industrial Countries.

Journal of Policy Modeling, 41 (2), 352-371, (2019)

L. Hutter, F. Jaehn, S. Neumann

Influencing Factors on Airplane Boarding Times.

Omega, 87, 177-190, (2019)

C. Jentsch, C.H. Weiß

Bootstrapping INAR models

Bernoulli 25(3), 2359-2408, (2019)

D. Kress, J. Dornseifer, F. Jaehn

An Exact Solution Approach for Scheduling Cooperative Gantry Cranes.

European Journal of Operational Research, 273, 82-101, (2019)

M. Kukec

Intra-party Conflict at Grassroots:

Party-Councillor Ideological Congruence in Croatia.

Party Politics, 25(5), 679-689, (2019)

M. Kukec

Individual Representation and Local Party Government: Representative Behavior of Croatian and Slovenian Municipal Councilors.
Wiesbaden: Springer (2019)

M. Kukec

Regionalist Populism in Croatia: the Case of the Croatian Democratic Alliance of Slavonia and Baranja – HDSSB.

In: R. Heinisch, E. Massetti, O. Mazzoleni, (eds): *The People and the Nation: Populism and Ethno-Territorial Politics in Europe.*
London: Routledge (2019)

M. Lewandowsky

Policy Congruence and Strategic Loyalty: Which Parties Nominate Candidates Dissatisfied with Democracy? Evidence from 11 European Countries.

Political Research Exchange 1 (1), 1-20, (2019)

M. Lewandowsky, J. Siri, N. Loew

The Man That Wasn't There: Exploring the Subcutaneous Manifestations of Party-Based Radical Right Populism.

SAGE Research Methods Cases,
doi:10.4135/9781526487315, (2019)

N. Maasera, F. Paetzel, S. Traub

Power Illusion in Coalitional Bargaining: An Experimental Analysis.

Games and Economic Behavior 117, 433-450, (2019)

D. Meyer

Der Fortbestand der Europäischen Währungsunion wird durch Italien infrage gestellt.

Ifo-schnelldienst, 72(1), 3-6, (2019)

D. Meyer

Minibots: Ein Liro als Parallelwährung für Italien?

Zeitschrift für das gesamte Kreditwesen, 72(3), 24-30, (2019)

D. Meyer

Gibt es bald eine Euro-Parallelwährung? – Zum Vorschlag einer Steuer auf Bargeld.
Orientierungen zur Wirtschafts- und Gesellschaftspolitik, 6. Juni 2019

H. Pfeifer, A. Spencer

Once Upon a Time. Western Genres and Narrative Constructions of a Romantic Jihad.

Journal of Language and Politics, 18:1, 21–39, (2019)

H. Safouane

Stories of Border Crossers: A Critical Inquiry into Forced Migrants' Journey Narratives to the European Union.

Springer VS, 250, (2019).

H. Safouane

Review of the book *Syria: The Making and Unmaking of a Refugee State*, by Dawn Chatty.

Global Affairs, 5(2),
doi: 10.1080/23340460.2019.1629823, (2019)

S. Traub, H. Yang

Tax Competition and the Distribution of Income.

Scandinavian Journal of Economics 122(1), 109-131, (2019)

C. H. Weiß

Distance-based Analysis of Ordinal Data and Ordinal Time Series.

Journal of the American Statistical Association (forthcoming),

doi: <https://doi.org/10.1080/01621459.2019.1604370>, (2019)

Professors, Deputy Professors and Junior Scientists

Univ.-Prof. Dr. Klaus Beckmann,
President since April 1, 2018

Univ.-Prof. Dr. Michael Berlemann,
Political Economy and Empirical Economics

Univ.-Prof. Dr. Christina Besio,
Sociology, especially Sociology of Organizations

Univ.-Prof. Dr. Sigrid Boysen,
Public Law, European and Public International Law

Dr. Maéva Clément,
International Security and Conflict Studies

Univ.-Prof. Dr. Sandra Destradi,
International Relations and Regional Governance

Univ.-Prof. Dr. Ralf Dewenter,
Economics, in particular Industrial Economics

Univ.-Prof. Dr. Barbara Dluhosch,
International Economics and Economic Policy Research

Univ.-Prof. Dr. Stephan Duschek,
*Business Administration, in particular
Organizational Theory*

Univ.-Prof. Dr. Christian Ernst,
*Public Law and Commercial Law (including
Public Procurement Law)*

Univ.-Prof. Dr. Claudia Fantapié Altobelli,
*Business Administration, in particular
Marketing*

Univ.-Prof. Dr. Andreas Fink,
*Business Administration, in particular
Business Informatics*

Univ.-Prof. Dr. Gabriel Frahm,
Applied Stochastics and Risk Management

Dr. Nicolas Fromm,
*Political Science with a Focus on
International Politics*

Univ.-Prof. Dr. Andreas Fuchs,
*Environmental, Climate and Development
Economics*

Univ.-Prof. Dr. Martin Josef Geiger,
*Business Administration, in particular
Logistics Management*

Univ.-Prof. Dr. Anna Geis,
International Security and Conflict Studies

Univ.-Prof. Dr. Jan Gertheiss,
Statistics & Data Science

Univ.-Prof. Dr. Markus Göbel,
*Corporate Governance and Corporate
Theories*

Univ.-Prof. Dr. Florian Grotz,
Comparative Government

Univ.-Prof. Dr. Hans Hanau,
*Civil Law, Commercial, Economic and
Labour Law*

Dr. Christoph Harig,
*International Relations and Regional
Governance*

Univ.-Prof. Dr. Dierk Herzer,
Economics, especially Economics and Growth

Univ.-Prof. Dr. Ulrich Hufeld,
Public Law and Tax Law

Univ.-Prof. Dr. Florian Jaehn,
*Business Administration, in particular Man-
agement Science and Operations Research*

Univ.-Prof. Dr. Annette Jünemann,
*Political Science with a Focus on
International Politics*

Univ.-Prof. Dr. Bert Kaminski,
*Business Administration, in particular
Business Taxation*

Univ.-Prof. Dr. Tanja Klenk,
Public Administration and Public Policy

Univ.-Prof. Dr. Sven Knoth,
Computational Statistics

Dr. Marko Kukec,
Comparative Government

Univ.-Prof. Dr. Hans Koller,
*Business Administration, in Particular
Technology and Innovation Management*

Dr. Marcel Lewandowsky,
Comparative Government

Univ.-Prof. Dr. Roland Lhotta,
*Political Science, especially the Political
System of the Federal Republic of Germany*

Univ.-Prof. Dr. Wenzel Matiaske,
Personnel and Work

Univ.-Prof. Dr. Matija Denise Mayer-Friedrich,
*General Business Administration and
International Finance*

Univ.-Prof. Dr. Dirk Meyer,
*Economics, especially Regulatory
Economics*

Univ.-Prof. Dr. Stefan Müller,
*Business Administration, in particular
Accounting and Auditing*

Dr. Fabian Paetzel,
Public Economics (Deputy Prof.)

Univ.-Prof. Dr. Christian Pierdzioch,
*Economics, in particular Monetary
Economics*

Univ.-Prof. Dr. Günter Reiner,
Business and Tax Law

Univ.-Prof. Dr. Gary S. Schaal,
*Political Science, in particular Political
Theory*

Univ.-Prof. Dr. Christina Schaefer,
*Administrative Science, in particular
Management of Public Organizations*

Univ.-Prof. Dr. Tobias Scheytt,
Management Accounting and Control

Univ.-Prof. Dr. Margarete Schuler-Harms,
*Public Law especially Public Business Law
and Environmental Law*

Univ.-Prof. Dr. Michael Staack,
*Theoretical and Empirical Research in
International Relations*

Univ.-Prof. Dr. Stefan Traub,
*Economics, especially Behavioral
Economics*

Univ.-Prof. Dr. Florian Wagner-von Papp,
*Private and Business Law (including
Contract Design)*

Univ.-Prof. Dr. Christian H. Weiß,
Quantitative Methods in Economics

Memberships in Editorial Boards of Scientific Journals

A great many memberships in editorial boards continued throughout 2019. Several positions came on top of those in 2018. For the term 2019-2021, Prof. in Christina Schaefer, head of Public Administration and Management, has been newly elected on the editorial board of the **Annals of Public and Cooperative Economics** (Wiley). Prof. Christian H. Weiss, head of Quantitative Methods in Economics, serves as associate editor of **Statistical Methods & Applications** (Springer) as well as on the editorial Board of **Quality Engineering** (Taylor & Francis), and he is a member of the Executive Board of **Society of Reliability, Quality and Safety**. Prof. Florian Grotz, head of Comparative Government, has been newly elected to serve on the editorial Board of **Revista Populus. Revista Jurídica de Ecuola Judiciária Eleitoral de Bahia**.

Election into Renowned Scientific Organizations

Because of their expertise, several members of the Faculty of Economics and Social Science have been newly elected into renowned academic organizations and positions. Prof. Anna Geis (**Political Science, in particular International Security and Conflict Studies**) was elected into the review board of the Deutsche Forschungsgemeinschaft (DFG), section Social Sciences, subsection Political Science, for the tenure 2020-2023. In addition, she has been ap-

pointed as representative of the HSU/UniBw H to the steering committee "Peace and Conflict Studies", established by the Hamburger Behörde für Wissenschaft, Forschung und Gleichstellung. Prof. Florian Grotz (**Comparative Government**) has been elected as president for the term 2019-2021 of the German Society for Political Science (Deutsche Gesellschaft für Politikwissenschaft, DGfP), and he has obtained membership of several scientific committees, such as the Scientific Advisory Board of POLLUX (DFG-sponsored project on information in political science (University of Bremen/GESIS Mannheim), and the Progressive Zentrum (Berlin).

Fellowships and Awards

Members of the team at the Professorship for Business Administration, in particular Marketing, received the Best Paper Award by VHB WK ÖBWL 2019 for the study on the "Tacit Dimension of Public Sector Attraction in Multi-Incentive Settings", and the Carlo Masini Award for Innovative Scholarship by the Public and Nonprofit Division of the Academy of Management at the Annual Meeting in Boston (USA) 2019 (awarded for the study "Emotional Responses to Bureaucratic Red Tape"). On top of that, the underlying research has been nominated for the Carolyn B. Dexter Award for the Best International Conference Paper at the Academy of Management, Annual Meeting, also in Boston.

National and International Collaborations

In 2019, Professor Hee-Young Kim (**Seoul**), Prof. Manuel Scotto (**Lissabon**), Dr. Sonia Gouveia (**Aveiro**), and M.Sc. Housseem Brairi (**Algier**) had been guests at the Professorship of Quantitative Methods in Economics. Several national and international guests had been invited for presentation of their most recent research at the chair's seminar, including Dr. Maria Mohr (**Uni Hamburg**), M.Sc. Johannes Bracher (**Uni Zürich**), Dr. Amanda Fernández-Fontelo (**HU Berlin**), Prof. Dr. Alexander Schnurr (**Uni Siegen**), and M.Sc. Housseem Brairi (**USTHB Algeria**). The Professorship for Business Administration, in particular Marketing, was able to intensify and deepen the cooperation with the University of Hamburg, Chair of Public Management & the University of Hamburg, Chair of Organization and Management, in working jointly on the project "Application of Neuroscientific Methods to Organizational Behavior and Public Management". Another cooperation developing a Media

Brand Trust Scale and Global Monitor is in the planning phase, with researchers at Hamburg Media School, the University of Florida and the Nordakademie Hamburg. Specific questions include the development of a media brand trust scale (MBTS), which can be applied in particular to the media industry across different countries. The MBTS may also be examined in the contexts of its contribution to media brand loyalty/equity as well as advertising effectiveness.

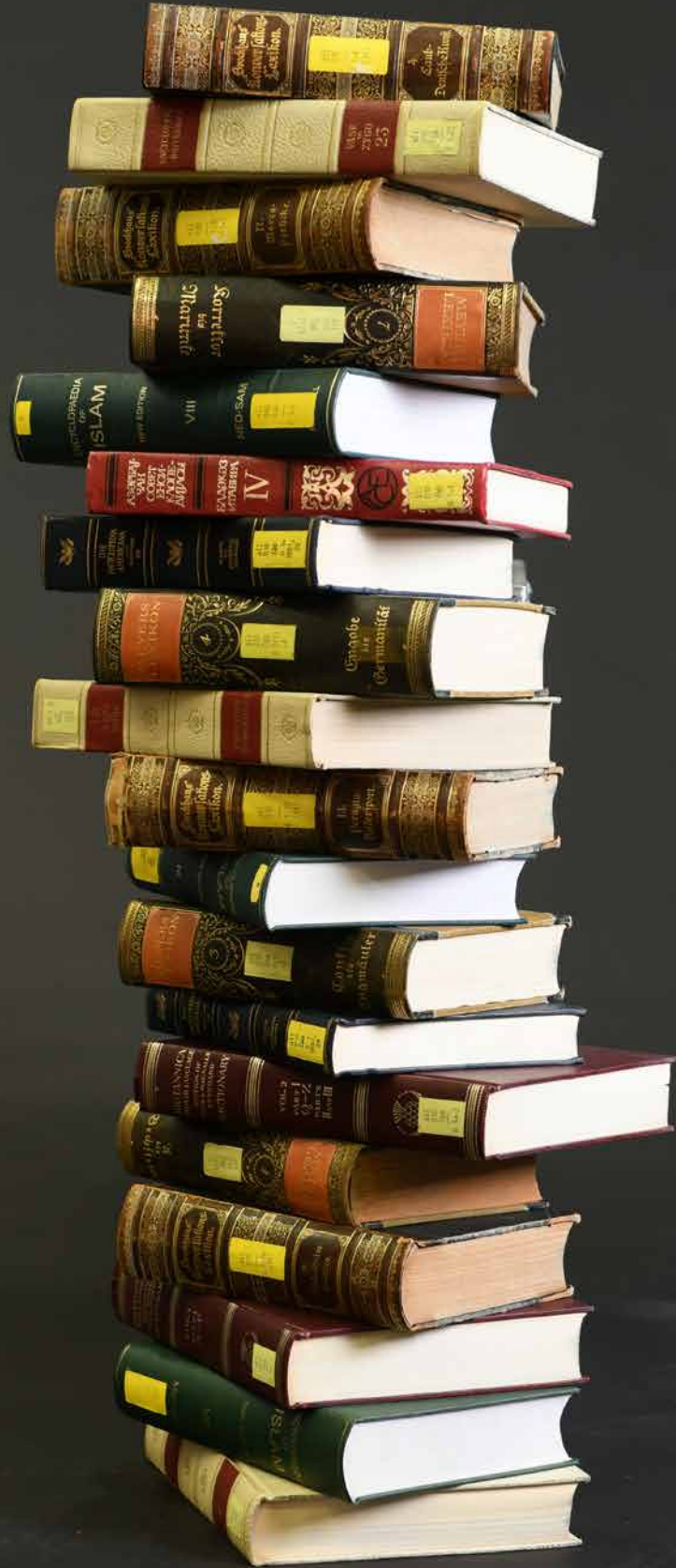
Conferences and Workshops

Several Conferences and meetings have been co-organized by the members of the Faculty. E.g., by the Professorship of Public Administration and Management with respect to infrastructure management, public budgets, and gender and labor market related issues: **Kommunales Infrastruktur-Management** (at TU Berlin, 26.09.2019), 7. Fachtagung zur Reform des öffentlichen Haushalts- und Rechnungswesens (**Hamburger Finanztage 2019**), 16./17.05.2019, and HdBA Fachtagung/Schwerin 2019: **Frauen. Arbeit. Lebenswelten**. Praxis trifft Wissenschaft zum Diskurs: Potenziale heben, Strukturbedarfe erkennen.

Prof. Florian Grotz, head of the Institute of Comparative Government, has co-organized the 37th Annual Meeting “Language and Politics” of the **German Society for Political Science (DGfP)**, while serving as a member of its board. Together with Dr. Marko Kukec, he organized an **international workshop** within the DFG-Project „Karriereprofile und politische Performanz von Premierministern in mittel- und osteuropäischen Demokratien” at HSU (September 18th to 20th, 2019). The meeting also served as a platform for coordinating on a special edition of the Journal “East European Politics”, which is in the making.

Outlook

As 2019 marked another successful year in acquiring external funds, a major goal for 2020 (and thereafter) will be to sustain the dynamics, to publish results in highly visible outlets, and to build on the knowledge thus generated by further advancing the respective research activities. Many research results are already accepted for publication in 2020. Plans include the deepening of international cooperation, the presentation and networking in various academic fora, and, last but not least, intensifying the public outreach in an attempt to make research results accessible to politics and bureaucracy as well as the general public. With this aim, a number of new professorships have been established and new research projects have been initiated by means of seed money grants. Moreover, research proposals, such as, for instance, on the candidate experience in the recruiting for the German Armed Forces and on the Media Brand Trust Scale are currently being prepared. And, many other projects covering issues at the theoretical and empirical frontier of academic research as well as those relating to public policy are in the making.



Faculty of Electrical Engineering

Overview

The Faculty of Electrical Engineering is divided into 13 professorships covering the full spectrum of electrical engineering both in teaching and in research. It is responsible for the Bachelor degree programs “Electrical Engineering” and “Engineering Science” and the master degree programs “Electrical Engineering”, “Renewable Energy and Smart Grids”, “Information Technology”, “Computer Science and Engineering”, and “Engineering Science - Defense Systems”. The Faculty supports the junior scientific staff and its research activities by providing the opportunities for doctorate and post-doctorate qualifications. In research, the Faculty of Electrical Engineering provides a broad selection of independent research and development projects, which guarantee an education on par with modern standards and expectations. All the results are published in scientific publications and books as well as presented at international scientific forums and conventions.

News from Research

In the project FALKE – Capability of Intercepting Small Unmanned Aircrafts Entering Restricted Airspaces by Civil Means – the **Professorship for Electrical Measurement Engineering** is leading a research consortium funded by the Federal Ministry of Transport and Digital Infrastructure with a total funding volume of 3.1 million Euros. The aim of the FALKE counter UAS system is to develop and demonstrate an overall technical and organizational concept for the defense against illegally operating UAS at Hamburg Airport. Taking into account all areas of competence and responsibility, this project is to provide automated and standardized concepts from the detection of a UAS to the final automated deployment of an interceptor UAS, so that the solution can be used as a blueprint for other airports. A focal point is the development of a coordinated action concept in the heterogeneous network of responsibilities at airports, including reporting chains and procedures. Further goals are definition, realization and standardization of data interfaces and communication protocols to connect the subsystems of the various organizations involved at the airport, automated interception and automated safe removal of an uninvited UAS, and characterization and verification of effector systems for the interception of uninvited UAS.

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In cooperation with the company VINCORION JENOPTIK Advanced Systems GmbH the **Professorship of Power Electronics** developed a modular drive concept as part of a three-year third-party funded research project. In this concept, the Power Electronics was directly integrated into the machine and each of the more than ten machine phases was operated with its own converter. This approach and the use of new wide



© photo #2 from faculty ET: Modular Silicon Carbide (SiC)-H-bridge phase drive inverter

band gap materials made it possible to create a fault-tolerant, redundant drive concept for high temperature environments. Only a combined single cooling circuit for the machine and the semiconductors was used. In this project, special attention was also paid to the requirements of the machine and the Electromagnetic Compatibility (EMC) regarding the very fast switching and the resulting steep slopes of the Silicon Carbide metal-oxide-semiconductor field-effect transistor (MOSFET).

As part of the BMBF's medical technology funding programme on the topic of „Immer vor Ort – mobile medizintechnische Lösungen für eine patientenfreundliche Gesundheitsversorgung“, the **Professorship of Electrical Machines and Drive Systems (EMA)** and the Professorship of Power Electronics (LEK) have been working on a central part of the joint project „Kompakte Faserkeramik basierte Röntgenröhre für mobile Computertomographen“ since 2019. A core task is the development of innovative approaches, including high-tech materials, in order to miniaturize existing computer tomography in such a way that mobile use is more effective possible. This is intended in particular to improve primary medical care in the events of accidents and suspected strokes. The objectives of the Professorship EMA and LEK are the development of a novel drive concept for high-performance rotating anode tubes. A particular challenge is the large air gap required for the insulation of the high voltage up to 75kV. In addition, the development of the machine is made more difficult by rotor temperatures of up to 500°C, which necessitates the use of the latest high-tech materials and the extension of modern design methods. Furthermore, the integration of the ultra-compact power electronic components into the X-ray tube housing with the increased ambient temperatures represents a further challenge. For this, novel innovative semiconductors characterized by a very high switching speed will be used.

The **Professorship for Electronics** works on simulation and modeling of electronic systems. In the past years, research has been focused mainly on manufacturing, characterization and modeling of organic devices such as field effect transistors, light emitting diodes, and non-volatile memory devices. In particular, the influence of different materials on the charge-carrier injection mechanism and the charge storage behavior was investigated. Another field of research is the investigation of electrical parameters of complex mechanical structures. In cooperation with the Professorship of Mechanics and the Institute of Polymer and Composites at Hamburg University of Technology, the Professorship for electronics is currently working on the utilization of electrical measurements for the detection of mechanical damages in carbon fiber structures. This project, which started in 2018, is supported by the Deutsche Forschungsgemeinschaft (DFG).

Within the cooperative project „Polymeraktuator“ a novel flexible and light-weighted driving unit for soft robotics applications such as exoskeletons is developed by the **Professorship of**

Electrical Machines and Drive Systems. Current trends in soft robotics and wearable robots show that flexible driving systems bring along enormous advantages in contrast to conventional stiff systems, as they are able to adapt their shape to natural changes of the application environment. Therefore, they interact trouble-free with the user and retake or support functions of natural moving units as human muscles. Besides the elasticity, the second important characteristic of soft robotic drives, especially for applications operating close to the human body, is a low weight of the drive system, since only light drive systems assure wearing comfort and allow for high driving dynamics.

Link: <https://www.intellus.eu/projekte/polymer-aktuator>

One of the intense research topics of the **Professorship of Laser Technology and Spectroscopy** that started in 2019 is devoted to exploiting diverse nonlinear optical effects in free-space multi-pass cells. This new technology has tremendous potential in pushing the frontiers of ultrafast science and technology. Additionally, a few femtosecond high-power thin-disk oscillators are being developed in HSU laboratories. One of these oscillators is developed in cooperation with National Research Council (NRC) Canada (Prof. Corkum).

For secure data communication and storage one promising approach that is known to be secure against quantum computer attacks, and therefore ensures long-term security of data, is based on quantum key distribution (QKD). The development of self-learning heterodyne receivers for continuous variable QKD systems is a key research topic of the **Professorship of Radio Frequency Engineering.** These receivers require standard telecom components only. One major advantage of this technology beside its simplicity is the potential coexistence of quantum signals with classical communication channels in one fiber core. In a state of the art experiment using a commercial *CORIAN*T system 56 DWDM 32-Gbaud channels with a total launch power of 14.5 dBm are tolerated by the quantum signal over a distance of 25 km. This work was carried out in the BMBF flagship project “Secure Networking for a Data Center Cloud in Europe (SENDATE FICUS)” in cooperation with European partners. The outstanding results were presented at the Optical Fiber Conference 2019, USA.

There were some project extensions and success in project competitions at the **Professorship for Electrical Power Systems.** The joint project ELBE

“Electrify Buildings for Electric Vehicles – accompanying scientific research for grid-friendly charging of electric vehicles”, supported by the Federal Ministry of Economics and Energy (BMWi) has been extended for 2 years and additionally expanded to the topic “Application of Smart Meter Gateway for electric vehicles”. The professorship is one of the winners of the BMWi-tender “Reallabore”. It will contribute to the topic of integrated grid planning of electrical, gas and heat grids. With the topic “Charging infrastructure of Vertiports”, the professorship is a future partner in a joint project for civil drone research i-LUM “Innovative luftgestützte urbane Mobilität” that will be supported by the state research funding of the Free and Hanseatic City of Hamburg.

In the **Professorship of Theory of Electrical Engineering and Computational Electromagnetics** new approaches to understand transient effects in electrical reverberation chambers have been taken up within a French-German research team. It is aimed at providing a new generation of economic test environments to access the electromagnetic (EM) compatibility and resilience of devices in a complex EM environment and to measure biological effects of EM fields. Such effects are further studied in the research group RF-BIO organized by the European Defense Agency (EDA). Its purpose is to link European laboratories to provide a sound scientific base for the assessment of risks due to the use of EM protection devices. In addition, new numerical methods for the assessment of stochastic parameters of volatile states in electronic devices have been studied. In the realm of a collaboration with the University of Wuppertal new simulation methods for huge real-life electro-quasi-static systems relevant for the assessment of the effect of EM fields on biological systems and microelectronic circuits have been gained. Based on these numerical methods, a concept to examine how radio-frequency EM fields effect signal integrity has been deduced.

The **Professorship for Signal Processing and Communications** has successfully acquired funding for a four year research project entitled “Classification of internet traffic” from the ipoque GmbH - Rohde & Schwarz Company. In this project, machine learning approaches for classification will be investigated and developed. A further funding for two persons over a research period of three years entitled “Detection and classification of video streams” has been acquired from the Wehrtechnische Dienststelle 71 (WTD 71) in Eckernförde. This project is an ex-

tension of previous research with the emphasis on developing a workflow for machine learning techniques for video applications.

Selected Publications

H. Göbel

Einführung in die Halbleiter-Schaltungstechnik,

Springer Verlag, Berlin, Heidelberg,
6. aktualisierte Auflage, 2019

L. Gong, H. Göbel

Structural parameters affecting the performance of non-volatile memory based on organic field-effect transistors

Microelectronic Engineering **203/204**, 31-37 (2019)

<https://doi.org/10.1016/j.mee.2018.11.004>

L. Gong, H. Göbel

Low-Voltage Organic Nonvolatile Memory Transistors with Single-Layer and Bilayer Polymeric Electrets

IEEE Transactions on Electron Devices **66** (10), 4348-4353 (2019)

<https://doi.org/10.1109/TED.2019.2934168>

A. Assenkamp, C. Kreischer, S. Kulig

Capability of synchronous machines to ride through events with high ROCOF

Archives of Electrical Engineering **68** (2), 325-339 (2019)

<https://doi.org/10.24425/ae.2019.128271>

C. Kreischer

Modern methods to monitor end winding vibrations in turbo-generators

COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering **38** (4),

1214-1223 (2019) <https://doi.org/10.1108/COMPEL-10-2018-0403>

M. Poetzlberger, J. Zhang, S. Gröbmeyer, D. Bauer, D. Sutter, J. Brons, O. Pronin

Kerr-lens mode-locked thin-disk oscillator with 50% output coupling rate

Opt. Lett. **44** (17), 4227-4230 (2019)

<https://doi.org/10.1364/OL.44.004227>

S. Gröbmeyer, J. Brons, M. Seidel, O. Pronin

Carrier-Envelope-Offset Frequency Stable 100 W-Level Femtosecond Thin-Disk Oscillator

Laser & Photonics Reviews **13** (3)

<https://doi.org/10.1002/lpor.201800256>

**S. Kleis, J. Steinmayer, R. Derksen,
C. G. Schaeffer**

Experimental Investigation of Heterodyne Quantum Key Distribution in the S-Band or L-Band Embedded in a Commercial C-Band DWDM System

Opt. Express **27** (12), 16540-16549 (2019)
<https://doi.org/10.1364/OE.27.016540>

**K. Chan, A. Geisler, J. Leibrich,
C. G. Schaeffer**

Experimental Demonstration of Differential Coding Gain for Dual Polarization Two-Eigenvalue Signals

IEEE Photon. Technol. Lett. **28**, 1913-1916 (2019)
<https://doi.org/10.1109/LPT.2019.2949431>

S. Kleis, C. G. Schaeffer

Improving the Secret Key Rate of Coherent Quantum Key Distribution with Bayesian Inference

IEEE Journal of Lightwave Technology **37**(3), 722-728 (2019)
<https://doi.org/10.1109/JLT.2018.2877823>

C. Cammin, D. Krush, R. Heynicke, G. Scholl
Employing correlation for wireless components and device characterization in reverberation chambers

Journal of Sensors and Sensor Systems **8**, 185-194, (2019)
<https://doi.org/10.5194/jsss-8-185-2019>

**F. Grumm, J. Storjohann, A. Lücken,
M. F. Meyer, M. Schumann, D. Schulz**

Robust Primary Protection Device for Weight-Optimized PEM Fuel Cell Systems in High-Voltage DC Power Systems of Aircraft

IEEE Transactions on Industrial Electronics **66** (7), 5748-5758 (2019)
<https://doi.org/10.1109/TIE.2018.2886808>

A. Jahic, M. Eskander, D. Schulz
Charging Schedule for Load Peak

Minimization on Large-Scale Electric Bus Depots

Applied Sciences **9** (9), 1748 (2019)
<https://doi.org/10.3390/app9091748>

**F. Grumm, M. Schumann, M. Meyer,
M. Plenz, D. Schulz**

Flexible Protection System for Electrical Sources and Systems with Limited Short-Circuit Current Capacity

WSEAS Transactions on Power Systems **14**, 234-243 (2019)
ISSN / E-ISSN: 1790-5060 / 2224-350X

**M. Schumann, F. Grumm, J. Friedrich,
D. Schulz**

Electric Field Modifier Design and Implementation for Transient PEM Fuel Cell Control
WSEAS Transactions on Circuits and Systems **18**, 55-62 (2019)

H. Wilken, M. Jordan, D. Schulz

Spectral Grid Impedance Identification on the Low-, Medium- and High-Voltage Level – System Design, Realization and Measurement Results of Grid Impedance Measurement Devices

Advances in Science, Technology and Engineering Systems Journal **4** (1), 8-16 (2019)
<https://doi.org/10.25046/aj040102>

**F. Gnegel, A. Fügenschuh, M. Hagel,
S. Leyffer, M. Stierner**

A Solution Framework for Linear PDE-Constrained Mixed-Integer Problems

Argonne National Laboratory, MCS Division Preprint ANL/MCS-P9265-1119. November 2019

**C. Kasmi, S. Lalléchère, S. Girard,
J. Lopes-Esteves, P. Bonnet, F. Paladian,
L. O. Fichte**

Reducing the Statistical Complexity of EMC Testing: Improvements for Radiated Experiments Using Stochastic Collocation and Bootstrap Methods

In Uncertainty Modeling for Engineering Applications (pp. 119-133). Springer, Cham. 2019.

**Y. Pei, Y. Hu, P. Zhang, C. Zhang, C. Lou,
C. E. Rüter, D. Kip, D. N. Christodoulides,
Z. Chen, J. Xu**

Coherent propulsion with negative-mass fields in a photonic lattice

Opt. Lett. **44**, 5949-5952 (2019)
<https://doi.org/10.1364/OL.44.005949>

**M. Medina, C. E. Rüter, M. C. Pujol, D. Kip,
J. Masons, A. Ródenas, M. Aguiló, F. Díaz**

KLu(WO₄)₂/SiO₂ tapered waveguide platform for sensing applications

Micromachines **10**, 454- (2019)
<https://doi.org/10.3390/mi10070454>

**L. L. Lazzarino, M. M. Kazemi, C. Haunhorst,
C. Becker, S. Hartwell, M. A. Jakob,
A. Przystawik, S. Usenko, D. Kip, I. Hartl,
T. Laarmann**

Shaping femtosecond laser pulses at short wavelength with grazing-incidence optics

Opt. Express **27**, 13479-13491 (2019)
<https://doi.org/10.1364/OE.27.013479>

D. Brüske, S. Suntsov, C. E. Rüter, D. Kip
Efficient Nd:Ti:LiNbO₃ ridge waveguide lasers emitting around 1085 nm
Opt. Express **27**, 8884-8889 (2019)
<https://doi.org/10.1364/OE.27.008884>

S. Suntsov, C. E. Rüter, D. Kip
Dual parameter fiber-integrated sensor for refractive index and temperature measurement based on Fabry-Perot micro-resonators
Appl. Opt. **58**, 2076-2080 (2019)
<https://doi.org/10.1364/AE.58.002076>

Professors, Deputy Professors and Junior Scientists

Univ.-Prof. Dr.-Ing. Stefan Dickmann,
Fundamentals of Electrical Engineering

Dr. J.-O. Fichte,
Control Engineering

Univ.-Prof. Dr.-Ing. Holger Göbel,
Electronics

Univ.-Prof. Dr.-Ing. Klaus Hoffmann,
Power Electronics

Univ.-Prof. Dr.-Ing. Joachim Horn,
Control Engineering

Univ.-Prof. Dr. rer. nat. habil. Detlef Kip,
Experimental Physics and Materials Science

Univ.-Prof. Dr. phil. nat. habil. Bernd Klauer,
Computer Engineering

Univ.-Prof. Dr.-Ing. Christian Kreischer,
Electrical Machines and Drive Systems

Univ.-Prof. Dr. Oleg Pronin,
Laser Technology

Univ.-Prof. Dr.-Ing. C. G. Schäffer,
Radio Frequency Engineering

Univ.-Prof. Dr.-Ing. habil. Detlef Schulz,
Electrical Power Systems

Univ.-Prof. Dr.-Ing. Gerd Scholl,
Electrical Measurement Engineering

Univ.-Prof. Dr. rer. nat. habil. Marcus Stiemer,
Theory of Electrical Engineering and Computational Electromagnetics

Univ.-Prof. Dr.-Ing. habil. Udo Zölzer,
Signal Processing and Communication

Memberships in Editorial Boards of Scientific Journals

Prof. D. Schulz
Applied Sciences (IF:1.689) Open Access Online Journal
Guest Editor Special Issue Editor
Special Issue in Electronics: Grid Integration of Decentralized Generation Plants
https://www.mdpi.com/journal/electronics/special_issues/grid_integration

Prof. D. Schulz
Applied Sciences (IF:1.689) Open Access Online Journal
Editorial Board Member, Power Electronic Section
https://www.mdpi.com/journal/electronics/sectioneditors/power_electronics
<https://www.mdpi.com/journal/electronics/editors>

Prof. D. Kip
Applied Sciences (IF:2.217) Open Access Online Journal
Editorial Board Member, Optics Section
<https://www.mdpi.com/journal/applsci/sectioneditors/optics>
<https://www.mdpi.com/journal/applsci/editors>

Election into Renowned Scientific Organizations

Prof. D. Schulz was one of the initiators and is the Spokesmen of the newly established interdisciplinary Working Group "Hydrogen for the Northern Germany Energy System" of the Academy of Sciences and Humanities in Hamburg. The Working Group aims to develop an interdisciplinary Meta-Study about the future use of Hydrogen in Northern Germany within the next five years.

Dr. J.-O. Fichte is head of the commission K (biological effects) of the national committee of the URSI (Union Radio-Scientifique International). Consequently, he joined the scientific boards of the German and international URSI conferences. In 2019, he particularly took part in the scientific preparation of the URSI GASS 2020. Moreover, Dr. Fichte is member of the scientific committee and head of the local organisation committee of the EuroEM 2020.

Fellowships and Awards

Prof. K. F. Hoffmann was elected as deputy chairperson to head of the Power Electronics and System Integration Faculty Q1 of the Power Engineering Society in the VDE (ETG). ETG's Faculty Q1 has dealt with power electronics components and their integration into systems.

Victor Hariton, PhD student at the Technical University of Lisbon, has received a fellowship from FCT Portuguese doctoral program APPLAuSE and joined our Professorship of Laser Technology.

Dr. J.-O. Fichte was selected as participant of the finals of a NATO-challenge on *EMP-Event Mitigation* based on his contribution *Implementation of Extensive Vulnerability Monitoring as a Backbone for Electromagnetic Resilience*. His presentation was recognized by a certificate of honour.

National and International Collaborations

In 2019 an international research collaboration between the Professorship of Power Electronics and the French-German Research Institute of Saint-Louis (ISL) has been started. The cooperation is in the field of experimental research of resonant topologies and high power switches.

In 2019, the Professorship for Electrical Power Systems started an international collaboration with Prof. Malcolm McCulloch from the University of Oxford in UK. He is Associate Professor in Engineering Science and Group Leader of the Energy and Power Group at the University of Oxford. Maik Plenz, a PhD student of the Professorship for Electrical Power Systems, was three months at the University of Oxford to prepare some joint publications. Prof. McCulloch will be one of the Keynote Speakers of the HSU conference event NEIS Conference on Sustainable Energy Supply and Energy Storage Systems in 2020.

Institute Pascal, Université Clermont Auvergne (Dr. Lalléchère, Prof. Bonnet, Prof. Palladian), Institut d'Électronique et de Télécommunications de Rennes (Prof. Besnier) and TU Dresden (Dr. Jacobs): A research program has been defined to explore transient effects in electromagnetic reverberation chambers. The results of this research will lead to enhanced testing methods for electromagnetic compatibility (EMC), electromagnetic resilience, and electrical impacts on biological systems. Further, stochastic methods in EMC are jointly developed.

Chair of Electromagnetic Theory, University of Wuppertal (Prof. Clemens): Development of parallelized numerical methods for high performance computation of large electro-quasi-static systems as occurring in real life (biological systems, electromagnetic circuits).

Bundeswehr Institute of Radiobiology, Munich, Germany (Dr. Lamkowski, Prof. Port, Prof. Abend): Systematic exploration of biological effects of electromagnetic fields on various biological models. The close cooperation is embedded into the European network RF-Bio organised by the European Defence Agency (EDA).

Universidade de Coimbra, Faculdade de Ciências e Tecnologia (Prof. Tony Richard de Oliveira de Almeida): A systematic investigation of aging effects on electromagnetic compatibility properties of electronic devices. The research is supported by the Wehrwissenschaftliches Institut für Schutztechnologien – ABC-Schutz in Münster.

Chair of Reliability of Tactical Systems and Electrical Measurement, University of Siegen (Prof. Dr. Frank Gronwald): A systematic study of different numerical techniques to assess stochastic distributions of volatile electromagnetic quantities in technical devices. So far, several joint conference papers have been prepared.

Faculty of Military Electronic and Information Systems at the Technical Military Academy of Bucharest (Dr. Georgiana Rosu): Testing environments for signal integrity in electronic devices and for the assessment of biological effects of radio-frequency electromagnetic fields are jointly developed. The cooperation is also embedded into the European network RF-Bio organised by the European Defence Agency (EDA).

TII (Dr. C. Kasmi, Prof. F. Vega, Dr. N. Mora): TII is an interdisciplinary research institution based in Abu Dhabi, UAE. A cooperation with this thriving research team is currently being installed on the fields of Intentional Electromagnetic Interference, EMC test facilities and Computational Electromagnetics. Dr. Kasmi is also affiliated to our group at HSU as an external associate researcher working on his habilitation thesis.

National Metrology Institute of Germany (PTB, PD Dr. Kleine Ostmann): In the context of a jointly supervised PhD, research is conducted for the development of methods to assess and minimize uncertainty budgets for certain measurement methods in antenna theory.

Bundeswehr Research Institute for Protective Technology - NBS Protection (Dr. Lange, Dr. Schaarschmidt): Several projects concerning test environments for electromagnetic compatibility (EMC) and resilience as well as aging effects in EMC are jointly carried out.

National Research Council (NRC) Canada. Prof. P. Corkum & Dr. A. Naumov. Femtosecond thin-disk oscillator development for the next generation solid-state deep UV frequency combs.

University of Regensburg. Prof. R. Huber. Multi-pass spectral broadening and compression of Yb-based femtosecond lasers.

Intensification of the cooperation between KUNBUS GmbH, Denkendorf, Texas Instruments Germany, Stuttgart, and the HSU, Professorship for Electrical Measurement Engineering: Construction of a technology demonstrator for the presentation of the IO-Link Wireless technology at the "Smart Production Solutions – SPS" trade fair in November by KUNBUS at their booth.

Conferences and Workshops

The NEIS 2019 - Conference on Sustainable Energy Supply and Energy Storage Systems, took place at the Helmut Schmidt University 80 registered participants, 37 full papers and 20 poster presentations from 19 - 20 September 2019. This conference event was technical co-sponsored by IEEE Power and Energy Society Germany Chapter. The conference papers published in VDE Conference Proceedings and in the IEEE Xplore database.

Outlook

The Faculty of Electrical Engineering is still in a phase of expansion. The additional chair for "Data Engineering" will enlarge the research areas. The planned research activities will be related to large scale data analytics with a high potential of collaboration with various research facilities within the other faculties of Helmut Schmidt University such as all logistics related institutes or, e.g., the Professorship of "Electrical Measurement Engineering" or "Automation Technology". This topic opens rich collaboration possibilities with the research and development activities in the port and trading city Hamburg, such as neighbouring universities and external research institutions.

The members of the Faculty will continue to acquire external funding from public agencies (BMBF, BMWi, DFG etc.) or from direct collaboration with the industry. Therefore research results of the different groups within the faculty will be transferred into the public and private sector.



Faculty of Humanities and Social Sciences

Overview

The Faculty of Humanities and Social Sciences at the Helmut Schmidt University / University of the Federal Armed Forces Hamburg conducts research on a wide range of issues, including history, psychology, and education. This basic and application-oriented research is increasingly funded by third parties. Young researchers are particularly encouraged in their career and independent research activities. Students are involved in research projects wherever possible and thus introduced to a scientific habitus.

The Faculty's research sponsors include the DFG, the Federal Ministry of Education and Research, the Thyssen Foundation, and other, smaller organizations. The individual professorships cooperate with research institutes in Hamburg, in Germany, and in the global context. Despite a high teaching load, many scientists succeed again and again in attracting attention in the scientific community with innovative research.

News from Research

The **Professorship Work, Organizational and Economic Psychology** received funding from the Federal Armed Forces for research projects on the "Quality and meaning of morale and welfare during deployment" and "Non response predictors of participation on occupational health programs".

In July 2019, the **Professorship of Educational Science, especially Social, Political and Legal Foundations of Education and Upbringing** was accepted into the Heisenberg funding programme of the Deutsche Forschungsgemeinschaft (DFG). A Heisenberg Professorship (starting summer 2020) with the denomination "Transformation of Governance in Education and Society" will be established at the HSU, which will be funded by the DFG for 5 years.

Together with the Georg Eckert Institute (Braunschweig), the **Professorship of Educational Science, especially Social, Political and Legal Foundations of Education and Upbringing** has launched a DFG cooperation project on the topic of "Educational Media 4.0? An analysis of the changes in production and mediation knowledge in the field of educational media". The cooperation project coordinated by the HSU is to examine, on the one hand, the changes in the production conditions of educational media (textbooks, free materials from private and civil society providers) in the context of digitization and, on the other hand, the associated changes in knowledge in the media.

The **Professorship Methods of Empirical Social Research and Statistics** received start-up funding from the Internal Research Funding of the HSU for the project "The Prevalence and Quality of Mixed-Methods and Multimethod Social Research – A Mixed Methods Investigation of Research Practice in Current Educational Science, Sociology, Political Science, and Psychology".

The **Professorship of Sociology with Special Emphasis on Microsociology** organized, as part of the research cluster OPAL (Organizations Professions Activities Labour), a university-wide event-programme focussing the book "Managing the Unexpected: Resilient Performance in an Age of Uncertainty" by Karl Weick & Kathleen Sutcliffe 2015. Over the period of two terms, 24 activities – including reading session, panel discussions, lecture series and workshops – were carried out. The program was realized as part of the funding format "One University - One Book" with funding from the "Stifterverband der Deutschen Wissenschaft", "Klaus-Tschira-Stiftung" and "ZEIT-Verlag".

The **Professorship of Clinical Psychology** received funding for an Interdisciplinary Research Group at the Hamburger Landesforschungsförderung on the topic: "Change mechanisms in social interactions" with 5 subprojects from psychology and computer science.

The **Professorship of Educational Science, especially Foundations of Education** received start-

up funding from the Internal Research Funding of the HSU for the project “Process structures of educational interaction in the day care centre”.

The **Professorship of Adult Education** received funding from the Bundeswehr for a research project on the “Evaluation, conceptualisation and implementation of continuing medical education, aiming at work process-oriented continuing medical education at the BwK Hamburg (E.K.I.)”.

Selected Publications

S. Amling

Logiken der Praxis im Parlament. Empirische Rekonstruktionen von Orientierungsrahmen von Bundestagsabgeordneten.
Soziale Welt, 70 (1), 32-58, (2019)

E. Berner

Der „Lehrling“: Qualifizierung einer Kategorie im schweizerischen Rechtsdiskurs (1870-1930).

In: **C. Imdorf, R. Leemann, P. Gonon (eds.):** *Bildung und Konventionen. Die „economie des conventions“ in der Bildungsforschung.* Wiesbaden: Springer VS, pp. 311-340, (2019)

H. Böving, E. Glaß, E. Habertzeth, S. Umbach
Digitalisierte Arbeit und menschliche Initiative. Empirische Analysen aus Logistik und Einzelhandel.

In: **R. Dobischat, B. Käßplinger, G. Molzberger, D. Münk (eds.):** *Bildung 2.1 für Arbeit 4.0?* Wiesbaden: Springer VS, pp. 141-160, (2019)

K. Büchter

Kritisch-emanzipatorische Berufsbildungstheorie – Historische Kontinuität und Kritik.

In: **K. Büchter, A. Lambert, M. Götzl, F. Gramlinger (eds.):** *Historiographische Berufsbildungsforschung.* bwp@ Berufs- und Wirtschaftspädagogik – online, No. 36, 1-21, (2019)

K. R. Fricke, D. M. Greenberg, P. J. Rentfrow, P. Y. Herzberg

Measuring musical preferences from listening behavior: Data from one million people and 200,000 songs.

Psychology of Music, 1-11, (2019)

M. Gomolla (with S. Langheinrich and B. Bello)

Qualitätsentwicklung von Schulen in der Migrationsgesellschaft: Evaluation der Lehrer_innenfortbildung zur Interkulturellen Koordination - Teil II (2014-2016).

Hamburger Beiträge zur Erziehungs- und Sozialwissenschaft, No. 17,
<http://edoc.sub.uni-hamburg.de/hsu/volltexte/2019/3239/> (2019)

M. Gomolla, E. Kollender

Schulischer Wandel durch Elternbeteiligung? Kontinuitäten und Neuerhandlungen der Bilder von ‚Eltern mit Migrationshintergrund‘ im politischen Diskurs der BRD.

Zeitschrift für Diversitätsforschung und -management, 1-2, 28-41, (2019)

S. Hartong, A. Förschler

Opening the black box of data-based school monitoring: data infrastructures, flows and practices in state education agencies.

Big Data & Society, 6(1): 1-12, (2019)



S. Hauff, M. Guerci, J. Dul, H. van Rhee

Exploring Necessary Conditions in HRM Research: Fundamental Issues and Methodological Implications.

Human Resource Management Journal, 31, 18-36, (2019)

T. Höhne

Mehrwert Bildung? Ökonomisierung im Feld der Schule.

Studie für die Rosa Luxemburg Stiftung.
<https://www.rosalux.de/publikation/id/39985/mehrwert-bildung/> (2019)

M. Jonas

Scandinavia and the Great Powers in the First World War.

London: Bloomsbury, (2019)

K. Jost, M. Wendt, A. Luna-Rodriguez,

A. Löw, T. Jacobsen

The time course of distractor-based response activation with predictable and unpredictable target onset.

Psychological Research, 83(2), 297-307, (2019)

K. Kaminski, J. Felfe, P. Schäpers, S. Krumm

A closer look at response options: Is judgment in situational judgment tests a function of the desirability of response options?

International Journal of Selection and Assessment, 27, 72–82, (2019)

I. Kammigan, D. Enzmann, L. J. R. Pauwels

Over- and underreporting of drug use: A cross-national inquiry of social desirability through the lens of situational action theory.

European Journal on Criminal Policy and Research, 25(3), 273–296, (2019)

U. Kelle, C. Kühberger, R. Bernhard

How to use mixed methods and triangulation designs. An introduction to history education research.

History Education Research Journal, 16, (1), 5–23, (2019)

K. Klug, J. Felfe, A. Krick

Caring for oneself or for others? How consistent and inconsistent profiles of health-oriented leadership are related to follower strain and health.

Frontiers in Psychology, 10, 2456, (2019)

F. Knappertsbusch

“Fractal Heuristics” for Mixed Methods Research – Applying Abbott’s “Fractal Distincti-

ons” as a Conceptual Metaphor for Method Integration.

Journal of Mixed Methods Research, 14, (4), 456-472, (2019)

A. Krick, J. Felfe, K. Klug

Turning intention into participation in OHP courses? The moderating role of organizational, intrapersonal and interpersonal factors.

Journal of Occupational and Environmental Medicine, 61, 779-799, (2019)

J. Kurig

Der Neuhumanismus als säkulare Bewegung?

Bildung, Philologie und Religion am Beispiel von Christian Gottlob Heyne (1729-1812).

IJHE Bildungsgeschichte. International Journal for the Historiography of Education 1, 2019, pp. 66-84, (2019)

K. Liebsch (ed.)

Reproduktionstechnologien, Generativität, Verwandtschaft.

feministische studien 37, 1, (2019)

K. Lohsträter

Zeitgeschichte, Empirie und Pragmatismus: Zeitungskollegs als Versuchsfelder (früh-)moderner historischer Methoden (1660-1820).

in: M. Friedrich, J. Schilling (eds.):

Praktiken frühneuzeitlicher Historiographie, Berlin, Boston, pp. 387-436, (2019)

A. Löw, J. D. Frey, R. Gorzka, A. Engers,

M. Wendt, H. Höllmer, T. Jacobsen

Multifeature mismatch negativity in patients with posttraumatic stress disorder.

Clinical EEG and Neuroscience, 50 (3), 147-153, (2019)

W. Menninghaus, V. Wagner, E. Wassiliwizky,

I. Schindler, J. Hanich, T. Jacobsen,

S. Koelsch

What are aesthetic emotions?

Psychological Review, 126(2), 171-195, (2019)

B. Meyer, M. Weiss, M. Holtkamp,

S. Arnold, K. Brückner, J. Schröder,

F. Scheibe, Y. Nestoriuc

Effects of an epilepsy-specific Internet intervention (Emyna) on depression: Results of the ENCODE randomized controlled trial.

Epilepsia, 60(4), 656-668, (2019)

M. Dehnavi, A. Wienhaus, J. Kurig,

C. Groppe

Gedächtnispolitik in den Geisteswissenschaften. Wissenspfade und Wissenskonflikte am



Beispiel der Geschichtswissenschaft, Erziehungswissenschaft und Germanistik in den 1960er und 1970er Jahren.

In: K. Amos, M. Rieger-Ladich, A. Rohstock (eds.): *Erinnern, Umschreiben, Vergessen. Die Stiftung des disziplinären Gedächtnisses als soziale Praxis.*

Weilerswist: Velbrück Wissenschaft, pp. 210-234, (2019)

C. Neumaier

Familie im 20. Jahrhundert. Konflikte um Ideale, Politiken und Praktiken.

Berlin/Boston: de Gruyter Oldenbourg, (2019)

A.-M. Nohl, R. Nazlı Somel

Education and Social Dynamics: A Multilevel Analysis of Curriculum Change in Turkey.

London/New York: Routledge, ISBN 9781138350144, (2019)

R. Ortlieb, B. Sieben

Balls, barbecues and boxing: Contesting gender regimes at organizational social events.

Organization Studies, 40(1): 115-133, (2019)

F. Pauls, M. Daseking, F. Petermann

Measurement invariance across gender on the second-order five-factor model of the German Wechsler Intelligence Scale for Children—Fifth Edition.

Assessment, 27(8), 1836-1852, DOI: 10.1177/1073191119847762, (2019)

A. Pabst, W. Curdt, M. Benz-Gydat, S. Schreiber-Barsch, C. Zeuner

Numeralität als soziale Praxis – forschungstheoretische Einordnung und empirische Zugänge.

Zeitschrift für Weiterbildungsforschung, 42(39), 379-395, (2019)

M. Payk, R. Pergher (eds.)

Beyond Versailles. Governance, Legitimacy, and the Formation of New Polities after the Great War.

Bloomington, Ind.: Indiana Univ. Press, (2019)

T. Schlömer, F. Berding, H. Jahncke, C. Becker, K. Kiepe, C. Wicke, K. Rebmann

Das didaktisch-methodische und professionelle Selbstverständnis von betrieblichem Ausbildungspersonal im Bereich des

nachhaltigen Wirtschaftens.

Zeitschrift für Berufs- und Wirtschaftspädagogik, 115(3), 486–515, (2019)

S. Schmidt-Lauff, J. Schwarz, A. Femi-Aderinto, T. Olatunji

Flexibilisation of Adult Learning and Education in the context of shifting temporalities in Nigeria and Germany.

Andragoška Spoznanja, 25(1), 51–67, (2019)

S. Schmidt-Lauff, S. Schreiber-Barsch, E. Nuissl (eds.)

Special Issue 2/2019 Zeitschrift für Weiterbildungsforschung: RaumZeit in der Erwachsenenbildung, (2019)

M. Seyfried, F. Reith

The seven deadly sins of quality management: trade-offs and implications for further research.

Quality in Higher Education, 25(3), 289 – 303, DOI: 10.1080/13538322.2019.1683943, (2019)

L. Wiedemann

Self-Tracking. Vermessungspraktiken im Kontext von Quantified Self und Diabetes.

Wiesbaden: Springer VS, (2019)

C. Zeuner

Adult Education Research in Germany: Approaches and Developments.

In: A. Fejes, E. Nylander (eds.): *Cartography of Research on the Education and Learning of Adults.* Lifelong Learning Book Series. Cham: Springer, pp. 33-51, (2019)

Professors, Deputy Professors and Junior Scientists

Dr. Steffen Amling,
Educational Science, especially Foundations of Education

Dr. Angelika Becker,
Educational Psychology

Univ.-Prof. Dr. Christiane Bender,
General Sociology

Univ.-Prof. Dr. Esther Berner,
Educational Science, especially History of Ideas and Discourse in Education and Up-bringing

Dr. Melanie Benz-Gydat,
Adult Education

Univ.-Prof. Dr. Karin Büchter,
Vocational and Company Pedagogy

Univ.-Prof. Dr. Monika Daseking,
Educational Psychology

Dr. Morvarid Dehnavi,
*Educational Science, especially
Foundations of Education and
Educational Science, especially Historical
Education Research*

Univ.-Prof. Dr. Hans-Peter Erb,
Social Psychology

Univ.-Prof. Dr. Jörg Felfe,
*Work, Organizational and Economic
Psychology*

Univ.-Prof. Dr. Mechtild Gomolla,
*Educational Science, especially
Intercultural and Comparative
Educational Research*

Univ.-Prof. Carola Groppe,
*Educational Science, especially Historical
Education Research*

Privatdozentin Dr. Sigrig Hartong,
*Educational Science, especially Social,
Political and Legal Foundations of
Education and Upbringing*

Univ.-Prof. Dr. Sven Hauff,
*Labour, Human Resources and
Organization*

Univ.-Prof. Dr. Philipp Y. Herzberg,
*Personality Psychology and Psychological
Diagnostics*

Univ.-Prof. Dr. Martina Heßler,
*Modern Social, Economic and Technical
History*

Univ.-Prof. Dr. Thomas Höhne,
*Educational Science, especially Social,
Political and Legal Foundations of
Education and Upbringing*

Univ.-Prof. Dr. Thomas Hoppe,
*Catholic Theology with Special
Consideration of the Social Sciences
and Social Ethics*

Univ.-Prof. Dr. Thomas Jacobsen,
Experimental and Biological Psychology

Privatdozent Dr. Michael Jonas,
*Modern History with Consideration of
Western European History*

Dr. Martin Karcher,
*Educational Science, especially Social,
Political and Legal Foundations of
Education and Upbringing*

Univ.-Prof. Dr. Udo Kelle,
*Methods of Empirical Social Research and
Statistics*

Dr. Julia Kerner auch Körner,
Educational Psychology

Dr. Katharina Klug,
*Work, Organizational and Economic
Psychology*

Dr. Angela Kornau,
Human Resource Management

Univ.-Prof. Dr. Katharina Liebsch,
*Sociology with Special Emphasis on
Microsociology*

Dr. Andreas Löw,
Experimental and Biological Psychology

Dr. Aquiles Luna-Rodriguez,
Experimental and Biological Psychology

Privatdozent Dr. Rudolf A. Mark
*(Deputy Professor),
19th and 20th Century History with
Special Consideration of Central and
Eastern Europe*

Privatdozent Dr. Mark May,
Spatial and Environmental Cognition

Univ.-Prof. Dr. Burkhard Meißner,
Ancient History

Univ.-Prof. Dr. Yvonne Nestoriuc,
Clinical Psychology

Privatdozent Dr. Christopher Neumaier
*(Deputy Professor),
Modern Social, Economic and Technical
History*

Univ.-Prof. Dr. Arnd-Michael Nohl,
*Educational Science, especially Foundations
of Education*

Univ.-Prof. Dr. Jutta Nowosadtko,
*Early Modern History with Special
Consideration of Social and Economic
History*



Dr. Antje Pabst,
Adult Education

Univ.-Prof. Dr. Marcus Payk,
*Modern History with Special
Consideration of Western Europe*

Dr. Katja Petersen,
Adult Education

Dr. Annabell Reiner,
*Work, Organizational and Economic
Psychology*

Prof. Dr. Olaf Sanders,
*Educational Science, especially Educational
Theory and Philosophical Foundations*

Privatdozent Dr. Martin Scherm,
Management Support Division

Univ.-Prof. Dr. Tobias Schlömer,
Vocational and Occupational Education

Dr. Katja Schmidt,
Adult Education

Univ.-Prof. Dr. Sabine Schmidt-Lauff,
*Continuing Education and
Lifelong Learning*

Dr. Florian Schweden,
*Work, Organizational and Economic
Psychology*

Dr. Jörg Schwarz,
*Continuing Education and Lifelong
Learning*

Univ.-Prof. Dr. Stephan Selzer,
Medieval History

Univ.-Prof. Dr. Barbara Sieben,
Human Resource Management

Univ.-Prof. Dr. Ewald Stübinger,
*Protestant Theology with Special
Consideration of Social Ethics and the
History of Theology*

Dr. Susanne Umbach,
Adult Education

Dr. Andreas Weiß,
*Modern Social, Economic and Technical
History*

Dr. Lisa Wiedemann,
*Sociology with special emphasis on
Microsociology*

Univ.-Prof. Dr. Christine Zeuner,
Adult Education

Memberships in Editorial Boards of Scientific Journals

Prof. Karin Büchter is member of the editorial board of "Bildung und Erziehung" and of the editorial board of "Berufs- und Wirtschaftspädagogik online".

Prof. Monika Daseking is member of the editorial board of Diagnostica (Zeitschrift für Psychologische Diagnostik und Differentielle Psychologie).

Prof. Jörg Felfe is editor of the German Journal of Work- & Organizational Psychology and member of the editorial boards of the European Journal of Work- & Organizational Psychology and the Journal of Personnel Psychology.

Prof. Sven Hauff is member of the editorial advisory boards of Human Resource Management Journal and International Journal of Human Resource Management.

Prof. Thomas Jacobsen is member of the editorial boards of the following journals: Empirical Studies of the Arts; Frontiers in Neuroscience; Frontiers in Psychology.

Prof. Udo Kelle is member of the advisory board of Qualitative Research and member of the editorial board of Forum Qualitative Research.

Prof. Katharina Liebsch is member of the Editorial Board of "feministische studien. Zeitschrift für Frauen- und Geschlechterforschung".

Prof. Arnd-Michael Nohl is member of the extended editorial board of *Diyâr – Journal for Ottoman Studies, Turkey and Near East Studies*.

Prof. Jutta Nowosadtko is member of the advisory board of the Bayerische Armeemuseum Ingolstadt and the advisory board of the Zentrum für Militärgeschichte und Sozialwissenschaften der Bundeswehr.

Dr. Jörg Schwarz is member of the editorial board 'Jahrbuch Organisationspädagogik'.

Prof. Barbara Sieben is member of the editorial advisory board of the journal *Emotions and Society*.

Prof. Christine Zeuner is consulting editor of *European Journal for Research on the Education and Learning of Adults (RELA)*.

Fellowships and Awards

Dr. Julia Kurig conducted research at the Technischen Universität Liberec (Tschechien) 1.3.2019 - 31.8.2019 within the EU-Programm „International Mobilities of Researchers“.

Dr. Jörg Schwarz received a DAAD-grant (conference mobility) to attend the ‚Focal Meeting der World Educational Research Association‘ [WERA] about ‚Future of Democracy and Education: Realizing Equity and Social Justice Worldwide‘ in Tokyo/Japan.

Prof. Arnd-Michael Nohl was Visiting Research Fellow at the Center for Global Studies, University of Victoria, Canada, from July to September.

National and International Collaborations

In March 2019, the American University of Sharjah invited **Dr. Angela Kornau** to a ThinkTank set up to advance research cooperation on Women in the MENA (Middle East North Africa) region.

In the EDI Journal (38/7), Alain Klarsfeld, Lena Knappert, **Angela Kornau**, Faith Ngunjiri and **Barbara Sieben** coedited a special issue on „Diversity in under-researched countries“.

The **Professorship for History of Ideas and Discourse in Education and Upbringing** advanced its networking of research activities with educational history and pedagogical research at the Universities of Liberec and Prague.

The Hamburg research and teaching network on history of education (established 2018), consists of four female professors: **Carola Groppe** and **Esther Berner** (HSU), Ingrid Lohmann and Sylvia Kesper-Biermann (UHH). The Hamburg network continued in 2019 in cooperative university seminars (joint courses with 100 students from both universities) and joint seminars for PhD students.

The **Professorship for the History of Ideas and Discourse in Education and Upbringing** cooperated with the Lower Saxony Institute for Sport History (Prof. Bernd Wedemeyer-Kolwe) and submitted a DFG proposal on „Body History“.

Dr. Julia Kurig (Professorship for Historical Education Research and Professorship for History of Ideas and Discourse in Education and Upbringing) held a guest professorship for History of Education at the Technical University of Liberec/ Czech Republic for six months, March – August 2019.

Conferences and Workshops

In July, **Dr. Angela Kornau** hosted together with Joana Vassilopoulou and Lena Knappert a stream on “Politics of migrants’ equality and diversity and resistance towards their workplace inclusion” at the EDI Conference in Rotterdam.

Dr. Klug and **A. Krick MSc.** organized a Symposium on “Occupational health promotion: leadership and resources” at the 19th Congress of the European Association of Work and Organizational Psychology (EAWOP) in Turino.

Prof. Sven Hauff co-organized a symposium on “Necessary Condition Analysis. Method and Applications” at the European Academy of Man-



agement Conference in Lisbon, and a professional development workshop on “Necessary Condition Analysis. Logic, Theory, Methodology, and Applications” at the Academy of Management Meeting in Boston.

Based on a longstanding collaboration with the University of Hamburg (Prof. Silke Schreiber-Barsch) the **Professorship of Continuing Education and Lifelong Learning** in March 2019 organized a Conference ‘Political education as critical utopia? Discussions on Justice, Maturity and Responsibility’ with several expert Symposia.

Dr. Martin Karcher hosted two workshops. The first author-workshop focused on “Living Theory”, together with Severin Sales Rödel, was divided into two parts from 4 - 5 October 2019 in Hamburg (HSU) and a second part from 17 - 18 January 2020 in Berlin (HU). The second workshop “Bildung: Technology and Reason” - together with Ricarda Biemüller, on 5 July 2019 at the University of Wuppertal.

Dr. Sebastian Pranghofer organized an international workshop on ‘Surgery in History’ (in cooperation with the University of Roehampton, London and funded by the Wellcome Trust). Another workshop (organiser: Dr. Sebastian Pranghofer) was hosted in November at the HSU to set up a larger research project on one of the leading military administrators in the electorate of Hanover during the eighteenth century and an online-edition of his papers.

Within the DFG funded Interdisciplinary Network on the Methodology and Applications of Integrative Research Methods the **Professorship for Social Research Methods and Statistics** organized two Conferences and Workshops: 1. Sampling, Data Collection and Data Combinations in Mixed Methods and Multimethod Research, took place at TU Berlin, January 17-19, in collaboration with the DFG Collaborate Research Centre „Re-Figuration of Spaces“ (SFB 1265) and the DFG Graduate School “Innovation Society Today” (GRK 1672); 2. “Methods for Integrative Data Analysis” took place at Goettingen University, May 23-25. In addition to the public keynotes on May 24, the meeting included a pre-conference on “Data Analysis and Sampling in Mixed Methods and Multimethod Social Research” on May 23.

Prof. Olaf Sanders organized the Hamburg Disputes from 16 to 18 May in the tradition of the Wittenberg Talks. At this conference at the HSU, more than 50 scholars discussed the future topics of the philosophy of education.

Outlook

The Faculty of Humanities and Social Sciences will continue to promote basic and applied research. Its researchers are involved in the conceptualisation, application and implementation of respective third-party funded projects. With the help of internal university research funds, they will increasingly be able to successfully acquire projects in the future. They will also continue to publish their output in nationally and internationally visible outlets.

Faculty of Mechanical Engineering

Overview

The professorships in the Faculty of Mechanical Engineering at the Helmut Schmidt University / University of the Federal Armed Forces Hamburg cover a considerable range of basic and application-oriented research. In 2019, the faculty's breadth of expertise was expanded by the establishment of professorships for Computational Material Design and High Performance Computing. In addition, a professorship for Computer Science in Mechanical Engineering was established by reassignment, thus taking into account the current development of mechanical engineering. Furthermore, the appointment procedure for the Laboratory of Turbomachinery was successfully completed. The field of civil engineering is also developing out of the faculty. In 2019, the first professorships could be filled, namely the professorships for Geotechnical Engineering, Construction Materials and Building Preservation, Statics and Dynamics, and Mathematics in Civil Engineering. In the Faculty, research is accompanied by high-quality teaching in small groups. Intensive programs with short study periods lead to degrees equivalent to those at civil universities.

The research work at the institutes is supported by public and industrial third-party funds. In addition to the Deutsche Forschungsgemeinschaft (DFG), public third-party funding is provided by the Federal Ministry of Education and Research (BMBF), the Federal Ministry for Economic Affairs and Energy (BMWi), the Federal Ministry of Defense (BMVg), the Free and Hanseatic City of Hamburg, and the Federal Highway Research Institute (BAST). The research projects are frequently carried out in cooperation with partners who are often university institutes and industrial enterprises in the Hamburg metropolitan region. For their research work, the institutes in the Faculty of Mechanical Engineering have access to well-equipped laboratories and a good computer infrastructure.

News from Research

The Helmholtz Association is funding the new Hamburg Graduate School "Data Science in Hamburg - Helmholtz Graduate School for the Structure of Matter" (DASHH) with almost six million Euros over six years. From Helmut Schmidt University, the **Professorships for Numerical Mathematics** and for **Fluid Mechanics** are involved. They form a research alliance with the German Electron Synchrotron DESY as the responsible body for the initiative, the University of Hamburg, the Hamburg University of Technology, the European XFEL, the Helmholtz Centre for Infection Research, the Helmholtz Centre Geesthacht, and the Max Planck Institute for Structure and Dynamics of Matter. The project "Advanced Simulation Methodology for Optimizing Aerodynamic Lenses used for Single-Particle Diffractive Imaging" was jointly proposed by Prof. Neumann, Prof. Breuer, Prof. Jochen Küpper (CFEL, DESY, University of Hamburg) and Dr. Muhamed Amin (CFEL, DESY) and is currently funded over three years.

In the joint project "Agent.HyGrid" funded by the German Federal Ministry for Economic Affairs and Energy, it was successfully demonstra-

ted on the basis of an electrical distribution network on a university campus that the algorithm developed at the Professorship of Automation Engineering for controlling generators and consumers is also suitable for practical use. The control system is based on autonomous agents that make decisions independently on the basis of predefined goals and recorded environmental conditions.

At the **Professorship of Mechanics**, Structural Health Monitoring is a focal point of research. The objective of this work is the detection, localization and classification of damage in thin-walled components of lightweight structures, e.g. made of fiber-reinforced plastics. The research work is methodically based on the propagation of elastic waves and is carried out experimentally and theoretically-numerically. Together with scientists from Technical University Braunschweig and University Bremen, the Research Unit FOR3022 "Ultrasonic Monitoring of Fiber Metal Laminates Using Integrated Sensors" was successfully applied for at the Deutsche Forschungsgemeinschaft. Scientists from the disciplines of materials engineering, lightweight construction,

microsystems technology, actuator and sensor technology, mathematics, computer science and mechanics will work together in the next few years to further develop the methods of structural health monitoring especially for fiber metal laminates used in the field of aeronautics. The funding includes an international female program as well as a program for the promotion of doctoral students. Dr.-Ing. Natalie Rauter, junior scientist at the Professorship of Mechanics, is involved in the project as a Principal Investigator, as are Professor Lammering and Professor Weber, **Professorship of Statics and Dynamics**.

At the **Professorship of Thermodynamics**, an eighth-order virial equation of state (VEOS) for krypton, valid for temperatures up to 5000 K, was developed using accurate ab initio potential functions for two-body and three-body interactions between krypton atoms. To enable a stringent test of the quality of the VEOS, speed-of-sound measurements in krypton were carried out in the temperature range from 200 K to 420 K and at pressures up to 100 MPa with a very low uncertainty of 0.005%–0.018% employing the pulse-echo technique. In order to verify that the isotopic composition of the krypton sample conforms to that of natural krypton in air, high-precision measurements of krypton isotope ratios were performed at the ETH Zürich. Pressures and speeds of sound calculated using the new VEOS have uncertainties of less than 0.1% at state points at which the VEOS is sufficiently converged.

The **Professorship of Thermodynamics** takes part in the EU funded project Real-K. The long-term goal of the project is to develop the methods and processes to enable realization and dissemination of the unit kelvin by primary thermometers without recourse to any defined scale. The Professorship of Thermodynamics contributes accurate speed-of-sound measurements in the noble gas neon, which is considered as an operating fluid for primary thermometers. Moreover, new potential functions for two-body and three-body interactions between neon atoms will be developed and applied to calculate transport properties of neon at low density and to establish a virial equation of state for neon.

The **Professorship for Automotive Engineering** enhanced in 2019 the knowledge in the two primary research domains: experimental and corresponding CAE techniques. A gained insight into the wheel-soil interaction under different soil conditions and their impact on trafficability was enabled by experimental approaches and

automated Multibody simulations for specific offroad trafficability determining driving maneuvers. With a new approach for the Greenhouse-Gas-Life-Cycle comparison of internal combustion and battery electric vehicles, a reliable basis was developed which will be extended to other propulsion systems like fuel cells. The model has a holistic perspective that delivers comparative results for the greenhouse gas emissions of the different propulsion systems under consideration of climate conditions and production emissions. In cooperation with the Federal Highway Research Institute a laboratory-based measurement method for the determination of friction on bituminous mixtures was implemented as a mobile application with the aid of a truck and an industrial robot. The measurement principle calls for different compensations of dynamic effects that were implemented and reconciled with the laboratory-based measurement method.

The newly established **Professorship for High Performance Computing** focuses on the development of efficient software for coupled multiscale problems, specifically for application in fluid dynamics. In 2019, work has been conducted on effective noise filters in hybrid molecular-continuum flow simulations as well as on auto-tuning for molecular dynamics simulation in a BMBF project. The work was honored with the SPPEXA Best Thesis Award for the master's thesis of PhD candidate Piet Jarmatz and the habilitation award of Bund der Freunde der Technischen Universität München for Prof. Philipp Neumann for his habilitation thesis.

The **Professorship for Process Engineering, especially Separation Technologies** focuses its research in the fields of safety research, as well as environmental engineering. The project "Room-disinfect", funded by the EUREKA Eurostars Program, was successfully finished in cooperation with one German and one Dutch SME. The objective was to design an automated indoor room disinfection process, including the development of a suitable disinfection means. - Regarding environmental engineering, the project "Valuable Recovery and Industrial Process Water Treatment" (Wertstoffrückgewinnung und industrielle Prozesswasseraufbereitung), funded by the Landesamt für Natur-, Umwelt- und Verbraucherschutz (LANUV) of North Rhine-Westphalia started with the focus on the separation of nickel and cobalt ions from industrial process water, reusing them as valuable metals of future importance. - In order ensure, a healthy water supply for the population, additional

major efforts were carried out on the subject of “Removing PolyFluorinated Tensides” (PFT) from ground and drinking water.

The **Professorship for Power Train Engineering** completed a project dealing with the predicting simulation of the combustion of a methane-powered gasoline engine by use of cellular automata. Based on the fundamental functionality of a cellular automaton, a calculation model has been developed to simulate a spark ignition combustion of CH₄ with external carburation. It could be shown that the principle of a cellular automaton can be considered as a promising alternative to the conventional calculation methods. The high degree of correlation with test bench results and the short computation times meet the expectations by using this approach and can be considered as a proof of concept.

The **Professorship of Statics and Dynamics** is one of the professorships at HSU dealing with Structural Health Monitoring. Within this research area, the detection, localization and classification of damage in thin-walled structures, made of e.g. fiber-reinforced plastics, is of interest. The Professorship of Statics and Dynamics herein contributes to the influence of interphases surrounding sensors and actuators on the propagation of elastic waves. Together with the Professorship of Mechanics (principal investigators at this professorship: junior scientist Dr.-Ing. Natalie Rauter, Professor Lammering) and scientists from Technical University Braunschweig as well as University Bremen, the Research Unit FOR3022 “Ultrasonic Monitoring of Fiber Metal Laminates Using Integrated Sensors” was successfully applied for at the Deutsche Forschungsgemeinschaft. - Additionally, the project “Electro-chemo-mechanical Modelling of Corrosion induced Material Damage (ECoMaD)” was successfully applied for at the internal scientific funding of the HSU. This project is a joint-work with the Professorship of Computational Material Design (deputy professor Dr. Höche; affiliated at Helmholtz-Zentrum Geesthacht, too). The aim of this research project is to couple both electro-chemical and mechanical models in order to better predict the long-term behavior of structures exposed to static loads and corrosion.

Within the priority program SPP 1962/21 “Nonsmooth Systems and Complementarity Problems with Distributed Parameters: Simulation and Multilevel Optimization”, the Deutsche Forschungsgemeinschaft (DFG) requests a total of 22 projects for 36 months each, among them the project “Semi-Smooth Newton Methods in Sha-

pe Spaces (SNewS)”. The project SNewS is carried out at the **Professorship of Mathematics in Civil Engineering** and pursues a new approach, which makes it possible to analytically investigate and numerically solve optimization problems with variational constraints in shape spaces. The main idea of the proposal is to set up a Newton form derivation concept, which can be used to analytically and numerically investigate form optimization problems with variational constraints that are not form differentiable in the classical sense. Moreover, these problems can be solved without using regularization techniques, which often lead only to approximate solutions.

The Free and Hanseatic City of Hamburg is funding the interdisciplinary joint project “Simulation-based Design Optimization of Dynamic Systems under Uncertainties” as part of the Hamburg state research funding program. The aim of the project, of which one part is investigated at the **Professorship of Mathematics in Civil Engineering**, is to develop innovative simulation methods for the robust optimization of complex components. By merging methods of applied mathematics and theoretical mechanical engineering, models are developed that capture dynamic operating conditions and uncertain manufacturing processes during optimization.

Selected Publications

N. Almohammed, M. Breuer

Towards a deterministic composite collision outcome mode for surface-tension dominated droplets

Int. J. of Multiphase Flow, vol. 110, pp. 1–17, (2019)

<https://doi.org/10.1016/j.ijmultiphaseflow.2018.08.007>

A. Apostolatos, G. De Nayer, K.U. Bletzinger, M. Breuer, R. Wüchner

Systematic evaluation of the interface description for fluid-structure interaction simulations using the isogeometric Mortar-based mapping

J. of Fluids and Structures, vol. 86, pp. 368–399, (2019)

<https://doi.org/10.1016/j.jfluidsstructs.2019.02.012>

M. Breuer, A. Khalifa

Revisiting and improving models for the breakup of compact dry powder agglomerates in turbulent flows within Eulerian-Lagrangian simulations

Powder Technology, vol. 348, pp. 105–125, (2019)
<https://doi.org/10.1016/j.powtec.2019.03.009>

M. Breuer, A. Khalifa

Refinement of breakup models for compact powder agglomerates exposed to turbulent flows considering relevant time scales
Computers & Fluids, vol. 194, 104315, (2019)
<https://doi.org/10.1016/j.compfluid.2019.104315>

T. Bauerochs, X. Huo, G. Yossifon, S. Ulrich, S. Schneider, R. Bruns

Description and visualization of the highly dynamic behavior of the electrorheological effect
Journal of Intelligent Material Systems and Structures, 31 (2), pp 308-317 (2019)
<https://doi.org/10.1177/1045389X19888788>

T. Bauerochs, X. Huo, G. Yossifon, S. Ulrich, S. Schneider, R. Bruns

Alternating current response and visualization of electrorheological fluid
Journal of Intelligent Material Systems and Structures, 31 (2), pp 288-296 (2019)
<https://doi.org/10.1177/1045389X19888789>

A. Pross, R. Bruns

Parametrierung eines Integrierten Superelastikreifenmodells und Anwendung in der Gesamtfahrzeugsimulation.
Logistics Journal: Proceedings, Vol. 2019 (2019) https://doi.org/10.2195/lj_proc_pross_de_201912_01

T. Busert, A. Fay

Extended Value Stream Mapping Method for Information based Improvement of Production Logistics Processes
IEEE Engineering Management Review, 47(4), pp 119-127 (2019)
<https://doi.org/10.1109/EMR.2019.2934953>

T. Berg, S. von Ende, R. Lammering

Bayesian consideration of unknown sensor characteristics in fatigue-related structural health monitoring.
Probabilistic Engineering Mechanics, 56, 71-81 (2019)
<https://doi.org/10.1016/j.probenmech.2019.02.001>

A. El Hawary, R. Hellmann, K. Meier, H. Busemann

Eighth-order virial equation of state and speed-of-sound measurements for krypton
J. Chem. Phys., 151, 154303 (2019)
<https://doi.org/10.1063/1.5124550>

P. Neumann

Sparse grid regression for performance prediction using high-dimensional run time data
In: Schwardmann U. et al. (eds) Euro-Par 2019: Parallel Processing Workshops. Euro-Par 2019. Lecture Notes in Computer Science, vol 11997. Springer, Cham (2019)
https://doi.org/10.1007/978-3-030-48340-1_46

P. Jarmatz, P. Neumann

MaMiCo: Parallel noise reduction for multi-instance molecular-continuum flow simulation
In: Rodrigues J. et al. (eds) Computational Science – ICCS 2019. Lecture Notes in Computer Science, vol 11539. Springer, Cham (2019)
https://doi.org/10.1007/978-3-030-22747-0_34

D. Luft, K. Welker

Computational investigations of an obstacle-type shape optimization problem in the space of smooth shapes
In: F. Nielsen and F. Barbaresco, eds., Geometric Science of Information, vol. 11712 of Lecture Notes in Computer Science, pp 579-588, Springer, 2019
https://doi.org/10.1007/978-3-030-26980-7_60

Professors, Deputy Professors and Junior Scientists

Univ.-Prof. Dr. Markus Bause,
Numerical Mathematics

Univ.-Prof. Dr.-Ing. Michael Breuer,
Fluidmechanics

Univ.-Prof. Dr.-Ing. Rainer Bruns,
Technical Logistics

Dr. Thomas Carraro,
Applied Mathematics

Dr.-Ing. Bhuiyan S. M. Ebna Hai,
Numerical Mathematics

Univ.-Prof. Dr.-Ing. Alexander Fay,
Automation Engineering

Dr. Frank Gärtner,
Materials Science

Dr. Frank Gimbel,
Numerical Mathematics

Dr.-Ing. Tobias Hellberg,
Automotive Engineering

Dr.-Ing. Bernhard Heinemann,
Mechatronics

Dr.-Ing. Robert Hellmann,
Thermodynamics

Univ.-Prof. Dr.-Ing. Sascha Henke,
Geotechnical Engineering

Univ.-Prof.'in Dr.-Ing. Sylvia Keßler,
*Construction Materials and Building
Preservation*

Univ.-Prof. Dr.-Ing. Thomas Klassen,
Materials Science

Dr. Uwe Köcher,
Numerical Mathematics

Univ.-Prof. Dr.-Ing. Denis Kramer,
Computational Material Design

Univ.-Prof. Dr.-Ing. Rolf Lammering,
*Mechanics and Vice President
for Research*

Dr. Stephan Lassen,
*Process Engineering, in particular
Material Separation*

Dr.-Ing. Alexander List,
Materials Science

Univ.-Prof. Dr.-Ing. Frank Mantwill,
*Machine Elements and Computer
Aided Product Development*

Univ.-Prof. Dr.-Ing. Karsten Meier,
Thermodynamics

Univ.-Prof. Dr.-Ing. Martin Meywerk,
Automotive Engineering

Dr.-Ing. Guillaume De Nayer,
Fluidmechanics

Univ.-Prof. Dr. Philipp Neumann,
High Performance Computing

Univ.-Prof. Dr.-Ing. Bernd Niemeyer,
*Process Engineering, in particular
Material Separation*

Univ.-Prof. Dr.-Ing. Oliver Niggemann,
*Computer Science in Mechanical
Engineering*

Dr.-Ing. Natalie Rauter,
Mechanics

Dr.-Ing. Tobias Redlich,
Manufacturing Engineering

Univ.-Prof. Dr.-Ing. Delf Sachau,
Mechatronics

Univ.-Prof. Dr.-Ing. Markus Schatz,
Laboratory of Turbomachinery

Dr. Carmen Tenholt,
Materials Science

Univ.-Prof. Dr.-Ing. Wolfgang Thiemann,
Power Train Engineering

Dr.-Ing. Stephan Ulrich,
Technical Logistics

Univ.-Prof. Dr.-Ing. Wolfgang Weber,
Statics and Dynamics

Univ.-Prof. Dr.-Ing. Robert Weidner,
Manufacturing Engineering

Jun.-Prof.'in Dr. Kathrin Welker,
Mathematics in Civil Engineering

Univ.-Prof. Dr.-Ing. Jens-Peter Wulfsberg,
Manufacturing Engineering

Dr.-Ing. Eugen Zimmermann,
Statics and Dynamics

Memberships in Editorial Boards of Scientific Journals

Prof. Michael Breuer is a member of the editorial boards of “International Journal of Heat and Fluid Flow” and “Flow, Turbulence and Combustion”.

Prof. Rolf Lammering is a member of the editorial board of “Smart Materials and Structures”.

Dr. Robert Hellmann, Professorship of Thermodynamics, was a member of the editorial advisory board of the “Journal of Chemical & Engineering Data” until December 2019.

Prof. Philipp Neumann is a member of the editorial board the MDPI (Multidisciplinary Digital Publishing Institute) journal “Computation”

Jun.-Prof.'in Kathrin Welker is a member of the editorial boards "Advances in Data Science, Association for Woman in Mathematics Series" and of the Online-Journal "GAMMAS"

Election into Renowned Scientific Organizations

Prof. Alexander Fay was admitted to the Deutsche Akademie der Technikwissenschaften (acatech) in October 2019.

Prof. Karsten Meier was elected as the Chair of the Working Group on Thermophysical Properties of Water and Steam of IAPWS at the Annual Meeting in Banff. The five-year term started in January 2020.

Prof. Philipp Neumann was elected as member of ICCS 2019 program committee, multiscale and simulation workshop, ICCS 2019 is a major international conference on computational science.

Prof. Philipp Neumann served as deputy chair of ISC HPC 2019 project poster committee, ISC HPC is one out of two major supercomputing events per year.

Jun.-Prof.'in Kathrin Welker was appointed as GAMM Junior for the years 2018 to 2020 and was elected to the position of First Deputy Speaker.

Fellowships and Awards

With his dissertation on the digitization and object-based modeling of previously only analog information for plants in the process industry, **Dr.-Ing. Esteban Arroyo Esquivel** at the Professorship of Automation Engineering has closed a research gap. The internationally acclaimed work was awarded the Science Prize of the Freunde und Förderer der Helmut-Schmidt-Universität on March 26, 2019.

The SPPEXA Best Thesis Award 2019 was awarded to Mr. **Piet Jarmatz** for his master thesis "Parallel Noise Reduction for Transient Molecular-Continuum Coupled Flow Simulations". Mr. Jarmatz is now a PhD candidate at the Chair of High Performance Computing.

Prof. Philipp Neumann has been granted the Habilitation Award 2019 by the Bund der Freunde der Technischen Universität München for his

habilitation thesis "Algorithms and HPC Software for Molecular-Continuum Flow Simulation".

National and International Collaborations

Dr. Arno Laesecke, formerly with the National Institute of Standards and Technology in Boulder, Colorado, visited the **Professorship of Thermodynamics** for four weeks in July 2019. During this stay, the Chair of Thermodynamics continued the long-term collaboration with him on establishing the torsional vibrating quartz viscometer as a primary viscometric technique for Newtonian liquids.

Conferences and Workshops

Prof. Martin Meywerk organized the 16th German-Polish workshop on Dynamical Problems in Mechanical Systems, which took place in Lütjensee from September 1 to 5, 2019.

Jun. Prof.'in Kathrin Welker was one of the organizers of the Section Optimization of Differential Equations at the 90th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM2019) at the Technical University of Vienna, held from February 18 to 22, 2019. - She further co-organized the mini-symposium Shape Analysis and Optimization at the 9th International Conference on Industrial and Applied Mathematics (ICIAM 2019) at the University of Valencia, held from July 15 to 19, 2019. – In addition, she was one of the organizers of the mini-symposium Computational Shape Optimization at the 6th International Conference of Continuous Optimization (ICCOPT2019) at the Technical University of Berlin, held from July 15 to 19, 2019.

Outlook

As mentioned above, the faculty is in an expansion phase. Within the faculty, the area of civil engineering is developing further which is connected with the establishment of additional professorships. At the end, a total of eleven professorships will be established in the field of civil engineering, covering this field with a focus on hydraulic engineering. In 2019, a number of deputy professors were hired, and numerous appointment procedures were carried out.

Centre for Technology Based Education and Training

Overview

The Centre for Technology Based Education and Training (ZtB) is a central research institution of Helmut Schmidt University/University of the Federal Armed Forces Hamburg (HSU/UniBw H) for the concerns of research in technology based education and training.

The ZtB is integral part of the HSU/UniBw H and reports to the President of the HSU/UniBw H. It performs its tasks autonomously and enjoys scientific independence within the scope of its research activities.

As an interdisciplinary and central research unit of the HSU/UniBw H, we conduct research on topics of technology-supported teaching and learning in (vocational) education and training and professional development. We also contribute in projects of strategic university development and profile building on behalf of the university management.

The head of the ZtB, Prof. Dr. Manuel Schulz, is involved in teaching in the bachelor and master programs in education and educational sciences.

Our portfolio of tasks includes as well the conception, organization, realization and follow-up of the Bundeswehr Education and Training Convention, which takes place annually at the HSU/UniBw H in close coordination with the so-called "work triangle", including the "Bildungszentrum der Bundeswehr", the Armed Forces Training Faculty in "Streitkräfteamt" and the HSU/UniBw H.

Research Highlights

Study „Multinational Capability Situation“

The third-party funded project „Study Multinational Capability Situation“ contributes research within the framework of the competence cluster „Security Research and Logistics“ of the HSU/UniBw H.

The project „Study Multinational Capability Situation“ is run in cooperation with the task owner, Referat I 3 „Multinationale Verteidigungsplanung / Fähigkeitskooperation“ of the Bundeswehr Office of Defence Planning, conducted by an interdisciplinary research consortium of HSU/UniBw H in the period from 01 December 2017 to 30 November 2020.

The HSU/UniBw H research consortium includes the President of the HSU/UniBw H, Prof. Dr. Klaus Beckmann (Professor of Economics), Prof. Dr. Markus Bause (Professor of Numerical Mathematics), and Prof. Dr. Manuel Schulz (Head of the ZtB) as head of the interdisciplinary research consortium.

The consortium is scientifically developing basic principles and application demonstrators of an IT-based tool that enables the assessment of potentials and risks of possible defense policy cooperations for capability development from a German point of view in socio-economic, mathematical and security and military policy perspectives as well as capability-related by means of qualitative and quantitative IT-based analysis in the IT system of the Bundeswehr.

Prof. Beckmann, Dipl.-Vw. Lennart Reimer and Dipl.-Vw. Katrin Knauf are developing a „Proof of Concept Demonstrator“ for a cooperation system as a basic model for an IT-supported representation of joint multinational capability development is possible. The demonstrator includes an assessment heuristic that can be used to analyze the various challenges during the assessment phase. It is intended to support and systematize the analysts' approach, to allow conclusions to be drawn about the preferences of the evaluators, and to facilitate the merging of the evaluations of different analysts.

Together with Dipl.-Math. techn. Anke Stieber, Prof. Bause is researching and developing tools for automated text analysis that can be integrated into the Bundeswehr IT-system of the Bundeswehr, since a large part of the data sources relevant to multinational capability planning are only available in text form. For this purpose, a “Proof of Concept Demonstrator” will be created using the tools provided within the SAP-based Bundeswehr IT-System. The demonstrator will show the functionality of an automated text analysis in its current state of development and also its potential for optimization.

Together with Dipl.-Soz. Beate Griebenow, Prof. Dr. Schulz is developing a consensual process model for the creation and optimization of a common situation picture of target formation. In an open-ended experiment, the procedure of an agile stakeholder management is tested. In this approach to stakeholder management, the focus is on the product to be realized and the acceptance of the users, with the aim of bringing together the various interests of all the stakeholders concerned. In this way, it is possible to jointly achieve a compatible understanding of the process and, by continuously involving all stakeholders „at eye level“ throughout the process, to develop a process model for creating and optimizing a common picture of the situation for target formation.

The proof of concept demonstrator of the co-operation system was presented by the research consortium and the Bundeswehr Office of Defence Planning to a selected group of people (level of the Federal Ministry of Defense) in its current state of development within the framework of the Bundeswehr Education and Training Convention, which took place from September 03 to 05, 2019 at HSU/UniBw H.



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EIN BUCH



HELMUT SCHMIDT
UNIVERSITÄT
Universität der Bundeswehr Hamburg

One University - One Book

Mindfulness and Resilience in Uncertain Times

With its proposal „Mindfulness and Resilience in Uncertain Times“, HSU/UniBw H has won the competition „One University - One Book“ organized by the Stifterverband deutsche Wissenschaft, the ZEIT publishing house and the Klaus Tschira Foundation. For their application, the initiators chose the book Das Unerwartete managen. Wie Unternehmen aus Extremsituationen lernen by Karl E. Weick and Kathleen M. Sutcliffe (2016) (original edition: Managing the Unexpected. Resilient Performance in an Age of Uncertainty, 2001, John Wiley & Sons).

In their book, Karl E. Weick and Kathleen M. Sutcliffe describe how high-reliability organizations which constantly deal with unanticipated events (e.g. in firefighting, medicine, crisis intervention) manage the associated uncertainty. While the advisory literature looks for easy solutions that would be capable of transforming uncertainty into security, Weick and Sutcliffe ask how to deal with the unexpected on an ongoing basis. The book develops five principles which allow organizations to operate successfully under conditions of uncertainty: preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience and deference to expertise. In doing so, the authors show how a „culture of mindfulness“ supports individual and collective actors in better understanding and flexibly handling unforeseen problematic situations. The project „Mindfulness and Resilience in Uncertain Times“ focused the question of the possibilities of resilient action on the part of organizations and debated critically the lessons and the stories contained in the book.

The goal of the project was to provide updates and re-contextualizations of Karl Weick and Kathleen Sutcliffe's proposed approach to the ma-

agement of the unexpected and discuss what mindfulness looks like concretely in contemporary society and how it can be shaped.

The project took place over two trimesters in the spring and fall of 2019 at HSU / UniBw H and included a total of 22 public events. In addition, the book was also the subject of five courses in various degree programs. During this time, the activities on operational health management took place, also under the motto of „Resilience and Mindfulness in Uncertain Times“. The reading project was organized and realized by the inter-faculty network Organisation, Personal, Arbeit und Leadership (OPAL) [Organization, Personnel, Work and Leadership] in particular by Professor Dr. Cristina Besio, Alexander Degel M.Sc., Dr. Jaromir Junne, Professor Dr. Athanasios Karafillidis, Professor Dr. Tanja Klenk, Professor Dr. Katharina Liebsch, Professor Dr. Wenzel Matiaske and Professor Dr. Tobias Scheytt.

The program consisted of interdisciplinary formats aimed at all staff and students of the university. The book's theses were the subject of - a series of public reading sessions

- a series of lectures over two trimesters featuring nine speakers
- two panel discussions
- a public discussion between representatives of the military and the university
- two workshops for graduate students and post-docs
- several lectures in different courses of study

- presentations at the 2019 Health Day held at HSU/Unibw H and the German Armed Forces Training Congress, and at the Summer of Knowledge at the city's Town Hall Market.

At all of these events, based on Karl Weick and Kathleen Sutcliffe's analysis, current societal transformation dynamics were addressed and thought through in terms of how they disrupt routines, reorganize cultures and bring with them new demands for action. In this way, dialogues and discussions between different disciplines and groups at the university and the armed forces were initiated.

The entire series of events was based on the willingness of participants to cooperate in an interdisciplinary and interorganizational way. It strengthened and deepened the collegiality among the participants, it brought interdisciplinarity to life and demonstrated cooperation for the visitors. For all those involved in the project, HSU/UniBw H was experienced as an organization open to diverse relationships and contexts of interaction.



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EIN BUCH



HELMUT SCHMIDT
UNIVERSITÄT
Universität der Bundeswehr Hamburg

Karl E. Weick & Kathleen M. Sutcliffe



MANAGING THE
UNEXPECTED
Sustained Performance in a
Complex World
KARL E. WEICK
KATHLEEN M. SUTCLIFFE
WILEY



Karl E. Weick & Kathleen M. Sutcliffe
Das Unerwartete managen
Die Geheimnisse der
Zukunftsfähigen Organisation
2. Auflage
WILEY

Das Buch „Das Unerwartete managen“ zeigt, was für Organisationen von entscheidender Bedeutung ist, um zuverlässig zu arbeiten: Fehlerkultur, Differenzierungsvermögen, Flexibilität, Anerkennung von Wissen über die Hierarchien hinweg sowie Achtsamkeit.

Achtsamkeit ist eine zentrale Voraussetzung, um Anzeichen des Unerwarteten frühzeitig erkennen zu können. Wie funktioniert Achtsamkeit?

Eine Uni – ein Buch

Gemeinsames Programm des Stifterverbandes und der Klaus Tschira Stiftung in Kooperation mit dem ZEIT Verlag.



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an der Universität Hamburg



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Landesforschungsförderung

Research Highlights

Scientists at HSU/UniBw H are involved in five research projects and additionally in a future cluster, which are funded by the state research funding of the Free and Hanseatic City of Hamburg. The projects generally have a duration of 3 years.

In this funding period, the funding line „Cooperative Research Associations and Research Training Groups“ was announced. This involves targeted funding for alliances between Hamburg’s state universities and their partners that meet the requirements for applying for joint research projects on a supraregional and international level. In addition, future clusters - so-called HamburgX projects - were funded. These are cooperative large-scale research projects that involve a broad spectrum of institutions and partners and also offer links to local business and industry.

Funding line „Cooperative Research Associations and Research Training Groups“

Univ.-Prof. Dr. Sandra Destradi, Chair of International Relations and Regional Governance (now Freiburg University), and Univ.-Prof. Dr. Anna Geis, Chair of International Security Policy and Conflict Research, are involved in the interdisciplinary Research Training Group „Democratising Security in Turbulent Times“. Partner institutions are the University of Hamburg, the Institute for Peace Research and Security Policy at Universität Hamburg (IFSH) and the German Institute for Global and Area Studies (GIGA). The Research Training Group not only asks what conflicts and contradictions arise between current security policy goals and principles of democratic governance, but also investigates whether innovative political processes can lead to the democratization of security. The research of the Research Training Group helps to further define the possibilities and limits of democratic security policy in times of fundamental change. We live in turbulent times: All over the world, established rules of social coexistence are being questioned, democratic institutions are losing acceptance. Increasing social polarization, the rapid development of digitalization and new types of global problems also pose fundamental challenges to established forms of internal and external security policy in democracies. How can security be shaped for the citizens of democratic societies under these changed conditions, and how is the relationship between democracy and security changing in the process?

Professor Dr. Katharina Liebsch, Chair of Sociology with special emphasis on micro-sociology, works in the research network „Care Transformations: Interdisciplinary Care Work Research“ with researchers from the University of Ham-

burg and the Hamburg University of Applied Sciences. The term „care crisis“ is used to discuss socially relevant problems in connection with a fundamental transformation of care work. Care work encompasses both unpaid and paid activities in the areas of nursing, care and education, among others. The participating researchers are asking themselves what new links between paid and unpaid, professional, semi-professional and lay work are emerging as a result of changing gender relations and demographic, socio-state and economic change (such as globalization)? The aim of the research network is to analyze care work with a view to these processes of social change and crisis: Which conflicts and social inequalities, but also new solidarities and potentials for socially sustainable arrangements go along with it? Professor Dr. Burkhard Meißner, Chair of Ancient History, together with colleagues from the University of Hamburg and the Institute for the History of German Jews, is involved in the research network „Gewalt-Zeiten. Temporalities of Violent Undertakings.“ Blitzkrieg, winter rest, boredom in the dugout: How did time shape wars and other collective violent undertakings from antiquity to the present? In five subprojects, historians are investigating this temporal dimension of violence, which has hardly been reflected so far. Grueling waiting characterized sieges in the case of Leningrad 1941 to 1944 or Rhodes 305 to 304 BC for attackers and defenders alike. Holidays were often used for attacks by perpetrators in anti-Semitic pogroms such as the recent one in Halle. Dawn was favored by North American Hurons around 1650 for raids on settlers. Agglomeration periods, phases of condensed and eruptive violence, played a crucial role for centuries in conquests of cities,

by sea and by land, for example, after fortifications were breached and troops flooded into the interior. In all these violent undertakings, historical actors, perpetrators and victims alike, planned time, accelerated or decelerated it, thought and acted in specific time horizons. Historical scholarship, in turn, took experiences of violence as indicators of historical ruptures, of new ages, such as World War I as the beginning of the 20th century. Analyzing the significance of temporalities for events of violence and thus at the same time questioning epochal classifications is the goal of this research group.

Professor Dr. Yvonne Nestoriuc, Chair of Clinical Psychology, is collaborating with colleagues at the University of Hamburg Medical School in the project „Mechanisms of Change in Dynamic Social Interactions“. Research is being conducted into how human interaction and communication on the one hand and personality development on the other influence each other. These reciprocal influences are based on complex behavioral dynamics in which subtle, automatically controlled signals play a major role. Therefore, in order to understand the basic mechanisms of psychological change processes, genetic factors, temperament and personality, as well as social interaction dynamics have to be investigated in their mutual interrelations. In the interdisciplinary research network, this is done by integrating innovative experimental and analytical techniques from psychology and computer science. The commonalities and peculiarities of

social interaction behavior between babies and their parents, in teenage groups, within teams at work, between patients and therapists, and last but not least between humans and avatars in virtual realities are observed.

Jun.-Prof. Dr. Kathrin Welker, Chair of Mathematics in Civil Engineering, is a partner in the joint project „Simulation-based Design Optimization of Dynamic Systems under Uncertainties“, which is carried out together with the University of Hamburg and the Technical University of Hamburg. The scientific objective of the joint research project is the development of innovative, digital methods for simulation-based optimization of complex parts and components. The focus lies on the enhancement of efficient mathematical optimization methods with the objective to take into account dynamic operating conditions and uncertain manufacturing processes. The project incorporates groups from mathematical and engineering sciences. It contributes to linking simulation-based engineering with applied mathematics through the theoretical description of practically relevant problems. Technical applications focus on part with mechanical and fluid dynamical functionalities from the industrial environment of Hamburg, which operate under dynamic conditions and uncertain parameters. In particular, a robust design is important for maintenance-intensive and maintenance-free products from the Hamburg aviation and medical technology environment.

Funding line „Future Clusters“

The HSU/UniBw H is involved in the project „Innovative airborne urban mobility (i-LUM)“ with nine professorships and thus provides the majority of the scientists involved in the project. Involved are Professor Dr.-Ing. Stefan Dickmann, Chair of Fundamentals of Electrical Engineering, Professor Dr.-Ing. Alexander Fay, Chair of Automation Technology, Dr. Daniel Häfliche, Chair of Computational Material Design (now Helmholtz-Zentrum Hereon), Professor Dr.-Ing. Klaus F. Hoffmann, Chair of Power Electronics, Professor Dr.-Ing. Christian Kreischer, Chair of Electrical Machines and Drive Systems, Professor Dr. Thomas Jacobsen, Chair of Biological Psychology, Professor Dr. Wenzel Matiaske, Chair of Human Resources and Labor, Professor Dr. Margarete Schuler-Harms, Chair of Public Law, Business and Environmental Law and Professor Dr.-Ing. Detlef Schulz, Chair of Electrical Energy Systems. The cooperation partners come from the Hamburg University of Technology, the HafenCity Universi-

ty and the Hamburg University of Applied Sciences.

The objective of the i-LUM joint project is to develop methods and a simulation environment to be able to holistically evaluate innovative concepts for air-supported urban mobility. Using the example of future scenarios (2040/2050) of the Hamburg metropolitan region, regional expertise from the fields of technology, information technology, urban planning, logistics, society and law will be brought together to coherently investigate multidisciplinary issues. From an urban planning perspective, the urban transport system of the future will be modeled in order to identify the necessary prerequisites for the integrability of the transport mode „air cab“. The expected benefits for Hamburg, its inhabitants and visitors are quantified and weighed against the costs. It is a project of basic systems engineering research.

Facts and Figures 2019

Majors

Faculty	Majors
Economic and Social Sciences (ES)	Business Administration (B. Sc., M. Sc.) Comparative Democracy Research (M. A.) Economics (B. Sc., M. Sc.) International Relations (M. A.) Military Leadership and International Security (M. A., postgraduate course) Political Science (B. A.)
Electrical Engineering (EE)	Computational Engineering (M. Sc.) Electrical Engineering (B. Sc.) Energy Management (M. Sc.) Information Technology (M. Sc.) Industrial Engineering (B. Sc., M. Sc.) Renewable Energy and Smart Grids (M. Sc.)
Humanities and Social Sciences (HS)	Educational Sciences (B. A., M. A.) History (B. A., M. A.) Psychology (B. Sc., M. Sc.)
Mechanical Engineering (ME)	Automotive Engineering (M. Sc.) Civil Engineering (B. Sc.) Defence Systems (M. Sc.) Energy and Environmental Technology (M. Sc.) Engineering Science (B. Sc.) Mechanical Engineering (B. Sc.) Mechatronics (M. Sc.) Product Engineering and Logistics (M. Sc.)

Study and Teaching

Faculty	Students	
	Total	Proportion of Women
ES	975	11.5 %
EE	198	5.1 %
HS	946	29.7 %
ME	311	9.6 %
Total	2,430	7.8 %
International	91	

Success Rate (Bachelor's Degree)

First-year students (class of 2014)	576
Graduated students (class of 2014)	411
Success rate (as of December 2018)	72 %

Success Rate (Master's Degree)

First-year students (class of 2013)	392
Graduated students (class of 2013)	335
Success rate (as of December 2018)	85 %

PhD Degrees and Habilitations (Academic Year 2017/2018)

PhD degrees	61
Postdoctoral lecturer qualification	2

Staff

University Staff	Members ¹	Positions ²
Academic staff	427	312
Non-academic staff	447	393
of which:		
Academic faculties	105	107
Military faculty ³	132	82
Central facilities (CF)	44	33
Central administration	109	123
Library	31	35
President's staff	25	13
Trainees	19	19
Total	894	724

¹ Headcounts as of October 1, 2018

² Converted to full-time positions (FTEs); for research assistants 18 hours per week were taken as basis for a full-time equivalent.

³ Military leaders and student services and support

Academic Staff

Faculty	Professors		Academic Staff		Assist.
	Members	Positions	Members	Positions	Members
ES	42	42	116	65	13
EE	13	13	28	36	7
HS	29	29	100	39	1
ME	20	30	116	65	13
CF			0	1	
Total	104	114	298	196	25

Appointments (Academic Year 2017/2018)

An offer of professorship from HSU accepted	9
An offer of professorship from other universities accepted	2

Funding

Spending (Fiscal Year 2018)	Euro
Personnel costs	45,991,391
Material expenses	4,421,586
Real estate costs ¹	43,802,299
Capital expenditure	14,035,955
IT costs	1,481,246
Total	109,732,477

¹ including rental and leasing charges (32.410.278 Euro)

Third-Party Funds

Externally Funded Staff ¹	
Academic staff	150
Other staff	29
Total	179

¹ Third-party funded personnel, as far as included in the university's budget (headcount)

Spending by Sponsors (Fiscal Year 2018)	Euro
DFG Deutsche Forschungsgemeinschaft	1,529,383
Federal Ministry of Defence	3,133,204
Federal Ministry of Education and Research	1,470,398
Other federal ministries	2,042,939
Federal authorities	97,644
European Union	328,465
State ministries and authorities	233,187
Contract research	2,148,733
Other public organizations	707,555
Foundations	116,170
Total	11,807,678

Spending by Facultys (Fiscal Year 2018)	Euro
EE	2,410,643
HS	860,079
ME	4,981,256
ES	2,223,961
ZtB	234,485
ZWW	221,031
Other	876,223
Total	11,807,678

International Relations

The Helmut Schmidt University collaborates with universities and institutions of higher education throughout the world. A study abroad term is offering students an opportunity to study their field at another university, to gain diverse new impressions, to broaden their individual horizons and to improve their personal development. There are more than 50 partner universities to choose from.

The university offers exchange programs with universities in Australia, Austria, Brasil, Czech Republic, Finland, France, Greek, Hungary, Island, Israel, Lithuania, Norway, Poland, Portugal, Romania, Russia, Scotland, Slovakia, South Africa, Sweden, Switzerland, Turkey, and United States of America.

Student Exchanges (Academic Year 2017/2018)	
Outgoing students	67
Incoming students	38

Property Administration

Total area of campus (m ²)	380,000
Number of buildings	57
Number of lecture/office buildings	12
Number of lecture halls and seminar rooms	37
Number of office rooms	336
Accommodations	1,941

Studies

The Helmut Schmidt University offers 26 degree programs in shorter time frame. All degree programs are accredited by civilian quality insurance agencies. It is possible to obtain a Bachelor's degree in seven trimesters (2 ¼ years) and a Master's degree in another five trimesters (1 ¾ years). All in all, studies should not take longer than four years.

In addition to their major field of study all students have to study interdisciplinary modules. Here they obtain general career-related skills and interdisciplinary and inter-methodological competences. Language training is mandatory for all students, as is the completion of work experience placements. In general, teaching takes place in classes with no more than 25 students.

Research

Research conditions are excellent, with laboratories of high technical standards and well-stocked libraries. The Helmut Schmidt University works in close cooperation with other universities, non-university research facilities and companies in Hamburg and its metropolitan area. The University is network member of Hamburg Aviation, one of the first leading-edge clusters with a total funding of 80 million euros. It is a partner in the Biocatalysis2021 research cluster, which develops biotechnological methods for manufacturing processes. The Helmut Schmidt University cooperates with the Helmholtz-Zentrum Geesthacht (Centre for Materials and Coastal Research) in the field of materials research, in which both institutions are world leaders in their respective disciplines.

Together with the University of Hamburg, the Hamburg University of Technology, the Hamburg University of Applied Sciences and the Hafencity University Hamburg, the Helmut Schmidt University established the Renewable Energy Research Group. Research clusters at the university comprise Cognitive Science, Sustainable Power Systems and Aeronautics Research.

Continuing Education

Our Academy for Continuing Scientific Education (ZWW) offers various Master-degree programs and other courses on a part-time basis. Developing and providing high-quality certification modules and further education courses with a main emphasis on the public sector is supposed to achieve two goals: First, fulfil the further education mandate of the Hamburg Higher Education Act in the best possible way. Second, with regard to personnel development and lifelong learning make an essential contribution to the further development of the HSU as an internationally oriented science partner of the Federal Government.

Facts and Figures 2019 – Published by

Helmut Schmidt University
University of the Federal Armed Forces Hamburg
University Planning and Controlling Office
Holstenhofweg 85
22043 Hamburg

Tel.: 0049 40 6541-2650
Email: controlling@hsu-hh.de
Web: <http://www.hsu-hh.de/controlling>

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