

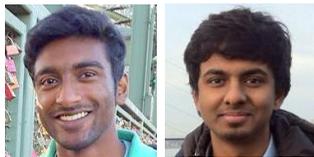
Overview of the International Activities in 2015

Student Mobility

In 2015, we had eleven incomings through the **Erasmus** program (**Poland: Bartosz Haladus, Portugal: Ruben Vincente, Turkey: Emre Bas, Onur Bilgilioglu, Ahmet Masih Ghani, Berkay Gür, Furkan Haskaraman, Sabri Kalay, Batuhan Karakas, Taha Memur, Cansu Tamirci**). In addition to the courses that are regularly offered in English, **Prof. Kiel** offered his course (Regelungstechnik+Praktikum) in English for the incomings. A number of trainees from **France** (Erasmus, supervised by **Ms. Zupfer**) and **India** (bi-lateral agreements, communicated by **Prof. Jahr**) were hosted in the laboratories of **Prof. Jahr, Prof. Kiel, Prof. Weber, Prof. Ziegler** and **Prof. Benim**.



Cansu



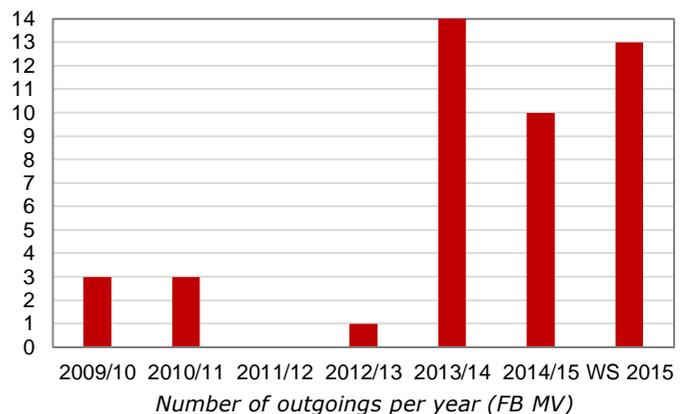
Sanjay

Balaji

Sanjay Krishnan Venguopal and **Balaji Babu** from **PSG Institute of Advance Studies, Coimbatore, India**, who became our students in 2014 (through the **IGCHE** program), completed their studies in 2015 successfully, and earned the Bachelor degree (**B. Ing.**) in our study program "Product Development and Production". Sanjay and Balaji are currently enrolled in a Master of Science program at the **Mechanical Engineering Department** of the **Technical University of Braunschweig**.

For gaining a better insight into the processes in the area of student mobility, several statistics were performed and, based on them, measures for further improvements were developed in the department. The figure right shows the number of outgoings per year, for the last five years.

Two students of **Prof. Kameier, Mr. Till Biedermann** and **Ms. Janicka Merz** completed a semester abroad during their Master studies. Mr. Biedermann was at the Department of Mechanical, Aerospace and Civil Engineering of the **Brunel University, London, UK** and performed research on aeroacoustics optimization. Ms. Merz was at the company **Geberit International AG, Jona, Switzerland** and worked on sound design.



Prof. Neef supervised the Bachelor thesis of **Mr. Daniel Feseker** at **Siemens, Fynspang, Sweden** and the traineeships of **Mr. Niko Thomas** and **Mr. Oguz Yavuz** at the **University of Maryland, USA**.

Two students of our study program "Industrial Engineering" (WIM), **Mr. Carsten Stöhr** and **Mr. Benedikt Reich** visited our partner university **TU Cluj-Napoca, Romania** and wrote their **Bachelor Thesis** in cooperation with the company **Star Transmission**, on product line optimization under the supervision of **Prof. Niemann**.

Initiated by **Prof. Niemann**, a **Cooperation Agreement** is signed with the **Cape Peninsula University, (CPUT) Kapstadt, South Africa**. Two students of the WIM study program, **Ms. Rebecca Jasper** and **Ms. Monika Janssen** visited CPUT for a semester (figure right).



Monika, Mr. Petersen (CPUT), Rebecca

Staff Mobility

Prof. Adam hosted a **Prof. Ungermanns** from the University of Applied Sciences Villach, **Austria** for a week, within the **Eramus** program, who gave lectures on the DoE method.

Prof. Kameier visited the **Brunel University, London, UK** and the company **NingBo Fan Co. Ltd., Ningbo, China**, for exploring possibilities for future cooperation.

International Ph.D.

Prof. Ziegler was a member of the jury of the doctoral examination of **Ms. Chantal Demeuldre** at the **University of Artois, France**, which was held on the May 25th 2015. The subject of the thesis was in the field of Medical engineering: Dynamic Prosthesis driven by Shape Memory Alloy.

Events



Prof. Khafizova (Mining University, St. Petersburg, Russia)
with Ismail (FB MV, HSD) on stage



The event „**International Experience 4 You**“, which became “traditional” in the meantime, took place again, in May 2015 in Café Freiraum as in every year since 2011, organized by **Prof. Benim** and **Ms. Atalay**, and sponsored by the **International Office (Ms. Dr. M. Katz)**. The purpose was information exchange in an informal and enjoyable atmosphere, with live music, drinks, foods as well as presentations and shows from students and researchers from different countries. **Incomings: Prof. Khafizova (Russia), Mr. Ghani (Turkey), Mr. Haladus (Poland), Mr. Vincente (Portugal), Outgoings: Mr. Sura** on his experience at the **University of Nantes, France**.

International Conference Visits

Mr. Gi-Don Na and **Mr. Till Biedermann**, assistants of **Prof. Kameier** visited the X-Noise/CEAS Workshop on Sound Localization and Prognosis as in September 2015, in **La Rochelle, France**. **Mr. Till Biedermann** visited in July 2015 the 3rd International Symposium On Energy Challenges and Mechanics in **Aberdeen, Scotland, UK**, and gave a presentation on energy harvesting via vortex induced vibrations.

From the team of **Prof. Neef**, **Mr. Christoph Laux** and **Mr. Maximilian Rödder** visited the International Conference ASME Turbo Expo 2015 in June 2015, in **Montréal, Canada** and presented their work in the field of organic Rankine cycles. ASME Turbo Expo conference series belongs to the largest and most important ones in the area turbomachinery. **Mr. Maximilian Rödder** visited the 3rd International Seminar on ORC Power Systems, in October 2015, in **Brussels, Belgium** and presented his work on the topic of fluid selection for ORC design, as a poster.



Mr. Maximilian Rödder



Prof. Weber

Prof. Weber visited a number international conferences and made presentations at these conferences. An outstanding conference among them has been the International Conference of the European Geosciences Union, April 2015, **Vienna, Austria**, which is the most renown conference in this area, with 14000 participants worldwide, to which Prof. Weber contributed by two presentations. Prof. Weber made presentations at the following international conferences too: 8th Int. Conf. on Environmental and Geological Science and Engineering (EG'15), June 2015, **Salerno, Italy**. 14th Int. Conf. on Instrumentation, Measurement, Circuit and Systems (IMCAS'15), June 2015, **Salerno, Italy**. 26th IUGG Int. Assembly of the Int. Union of Geodesy and Geophysics, July 2015, **Prague, Czech Republic**, International Conference on Integrated Management and Systems for Energy, Development, Environment, August 2015, **Malta**. In February 2015 Prof. Weber also joined an International Workshop on Physics of Volcanos in Potsdam.

Prof. Benim and **Mr. Sohail Iqbal** visited the 8th International Conference on Computational Heat and Mass Transfer (ICCHMT 2015) in May 2015, **Istanbul, Turkey**, and the 16th International Conference on Fluid Flow Technologies - Conference on Modelling Fluid Flow (CMFF'15) in September 2015, in **Budapest, Hungary** and presented their work on combustion modelling on both conferences. Prof. Benim and **Mr. Ali Nahavandi** attended the 8th German-Russian Resource Conference, in October 2015, in **St. Petersburg, Russia**.



Prof. Benim

International Research



Prof. Weber and team ready for the mission



Prof. Weber and team in Peking



Erupting Bardarbunga-Volcano in Island

In Spring 2015, a cloud of Sahara dust was extending over a long distance from Africa up to **France** and even deeper into **Europe**. Commissioned by the German Weather Service (Deutsche Wetterdienst, DWD). **Prof. Weber** and his team (Labor für Umweltmesstechnik) performed flights with their research aircraft and analyzed this dust cloud. An additional international research activity of Prof. Weber in Spring 2015 was a measuring campaign in **Peking, China**, which was supported by a leading German automotive manufacturer. The subject of the investigation was the effectiveness of car air conditioning systems in cleaning the polluted air of Peking. In 2015, commissioned by the Federal Environmental Agency of Saxony, Prof. Weber and his team performed research flights over the industrial areas in the north of **Czech Republic** and **Poland**. The purpose was the investigation of pollutant transport from these areas to Germany, and specifically to Saxony. A further international research activity of Prof. Weber and his team in 2015 was, again (like in the many previous years), in the field of volcano research. The eruption of Bardarbunga-Volcano in **Island** from August 2014 to February 2015 produced volcano ash with large amounts of toxic SO₂. Prof. Weber and his team performed detailed air and land based measurements during this volcano eruption. The automatic scanning SO₂ measuring system of Prof. Weber's Laboratory (Labor für Umweltmesstechnik) was playing an important role in these measurements.

Prof. Benim hosted **Assist. Prof. O. Khafizova** from the Mining University, **Saint Petersburg, Russia**, for one year, for joint research on modelling the welding process, which was funded by the Heinrich Herz Foundation (Heinrich Herz-Stiftung). A further guest researcher in the laboratory of Prof. Benim was **Assist. Prof. N. Özsezen** from the **Kocaeli University, Turkey**, who worked on modelling liquid biofuel combustion. With Prof. Özsezen, a German-Turkish joint research proposal with two Turkish and two German partners was developed and submitted to Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF). **Prof. A. Neche** from the Technological University Saad Dahlab, **Blida, Algeria**, visited Prof. Benim for a month in April 2015, for a joint research on counter gradient diffusion in premixed flames. **Assoc. Prof. M. Tahat** from the Al'Balqa University, **Amman, Jordan** visited Prof. Benim for three months from June to September 2015. The visit was funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG) and aiming a joint research on heat transfer enhancement by nanofluids. A further visitor in the laboratory of Prof. Benim was **Mr. A. Hammoud**, who is a Ph.D. student at the University of Sciences and Technology Houari Boumedienne, **Bab Ezzouar, Algeria**. His visit for a month in October 2015 was, again, aiming a research cooperation in the area of heat transfer enhancement by employing nanofluids. Towards the end of 2015, **Dr. Y. Saeedrashed** from **Erbil, Iraq** joined the team of Prof. Benim, who has expertise in GIS and DTM and their integration in computational flow modelling.



Dr. O. Khafizova



Dr. N. Özsezen



Mr. A. Nahavandi, Prof. A. Neche, Prof. Benim



Dr. Y. Saeedrashed, Prof. Benim



Mr. A. Hammoud, Prof. Benim

Publications in International Conferences and Journals

Biedermann, T., **Kameier, F.**, Heinze, R., "On the optimization of a cylinder/plate configuration with the aim to improve the energy harvesting of vortex induced vibrations", Journal of Energy Challenges and Mechanics, Vol. 2 Issue 2 (2015) 68-74.

Laux, C., Goebel, J., **Neef, M.**, Gotter, A., "Investigation in the technical and economic feasibility of a low-pressure steam cycle for the waste heat utilization of a cogeneration plant", ASME-Paper GT2015-42084.

Roedder, M., **Neef, M.**, Laux, C., Proebe, K.-P., "Systematic fluid selection for organic Rankine cycles and performance analysis for a combined high and low temperatures cycle", Journal of Engineering for Gas Turbines and Power 138 (3) 2015 GTP-15-1272.

Roedder, M., **Neef, M.**, Laux, C., "Systematic fluid-selection in early stages of ORC design – a practical engineering approach", Paper No. 169, ASME ORC 2015 – 3rd International Seminar on PRC Power Systems, 121-4 October 2015 Brussels, Belgium.

Weber, K., Scharifi, E., Böhlke, C., "Mobile measurements of the horizontal variation of fine particulate matter in the state of North Rhine Westphalia in Germany – a case study", Proceedings of the International Conference of Integrated Systems and Management for Energy, Development, Environment and Health ISMEDEH '15, Malta, August 17-19, 2015.

Weber, K., Pohl, T., Fischer, C., Lange, M., Böhlke, C., "Determination of a vertical profile of black carbon by a combined application of a light research aircraft and a quadcopter unmanned aerial vehicle – a case study using an airborne ultraportable micro-aethalometer for black carbon measurements at a rural site in Germany", Recent Researches in Electrical and Computer Engineering, 2015, pp 13-18, ISBN 978-1-61804-315-3.

Weber, K., Fischer, C., Pohl, T., Böhlke, C., Lange, M., Scharifi, E., Eliasson, J., Yoshitani, J., "The Application of Light Research Aircraft for the Investigation of Volcano Eruption Plumes", Industrial Emissions and Urban Plumes, WSEAS TRANSACTIONS ON ENVIRONMENT and DEVELOPMENT, Vol. 11, 2015, 89-94, E-ISSN: 2224-349.

Weber, K., Fischer, C., Lange, M., Pohl, T., Boehlke, C., Wagner, F., Mattis, I., Flentje, H., Sturm, K., Barth, J., Steinkopff, T., Vogel, A., "Aircraft measurements compared with ceilometer measurements during a Sahara dust period in Germany", Geophysical Res. Abst., Vol 17, EGU2015-9776, 2015.

Arnason, G., Eliasson, J., **Weber, K.**, Böhlke, C., Palsson, T., Rognvaldsson, O., Thorsteinsson, T., Platt, U., Tirpitz, L., Jones, R., Smith, P., "Results of airborne measurements in the plume near and far the 2014 Bardarbunga-Holuhraun eruption", Geophysical Res. Abst., Vol. 17, EGU2015-5553, 2015.

Rognvaldsson, O., Arnason, G., Palsson, T., Eliasson, J., **Weber, K.**, Böhlke, C., Thorsteinsson, T., Tirpitz, L., Platt, U., Smith, P., Jones, R., "Modeling of SO₂-dispersion from 2014 Holuhraun eruption in Iceland using WRF-Chem", Geophysical Research Abstracts, Vol. 17, EGU2015-10113, 2015.

Galle, B., Arellano, S., Conde, V., Pfeffer, M., Barsotti, S., Stefansdottir, G., Bergsson, Ba., Bergsson, Be., Ingvarsson, T., **Weber, K.**, "Ground based measurements of the gas emissions from Holuhraun volcanic fissure eruption on Iceland 2014/2015", Geophys. Res. Abst., Vol.17, EGU2015-1772-1, 2015.

Weber, K., Eliasson, J., Arnason, G., Rognvaldsson, O., Thorsteinsson, T., Palsson, T., Boehlke, C., Fischer, C., Smith, P., Jones, R., Tirpitz, L., Platt, U., "Airborne measurements and CRF-model calculations of the Bardarbunga-Holuhraun eruption plume", Geophysical Research Abstracts, Vol 17, EGU2015-10847, 2015.

Benim, A. C., Iqbal, S., Nahavandi, A., Meier, W., Wiedermann, A., Joos, F., "Analysis of Turbulent Swirling Flames in a Gas Turbine Combustor Model", Proc. "8th International Conf. on Computational Heat and Mass Transfer (ICCHMT 2015) May 25-28, 2015, Istanbul, Turkey (2015) Paper No. 111.

Benim, A. C., Diederich, M., Nikbay, M., "Optimization of Airfoil Profiles for Small Wind Turbines", Proc. "8th International Conf. on Computational Heat and Mass Transfer (ICCHMT 2015) May 25-28, 2015, Istanbul, Turkey (2015) Paper No. 176.

Iqbal, S. **Benim, A. C.**, Joos, F., Wiedermann, A., "Numerical Analysis of Natural-, Bio- and Syngas Flames in a Gas Turbine Combustor Model using Flamelet Method", Proc. "16th Int. Conf. on Fluid Flow Technologies Conf. on Modelling Fluid Flow (CMFF'15) Sept. 1-4, 2015, Budapest, Hungary (2015) Paper No. 138.

Taymaz, I., Aslan, E., **Benim, A. C.**, "Numerical Investigation of Incompressible Fluid Flow and Heat Transfer across a Bluff Body in a Channel Flow", Thermal Science 19 (2015) 537-547. doi: 102298/TSCI120220145T.

Aslan, E., Taymaz, I., **Benim, A. C.**, "Investigation of LBM Curved Boundary Treatments for Unsteady Flows", European Journal of Mechanics - B Fluids 51 (2015) 68-74.

Assmann, A., Gül, F., **Benim, A. C.**, Joos, F., Akhyari, P., Lichtenberg, A., "Dispersive Aorta Cannulas Reduce Aortic Wall Shear Stress Affecting Atherosclerotic Plaque Embolisation", Artificial Organs 39 (2015) 203-211.

Ризванов, Р.Г., Файрушин, А. М., **Беним, Али С.**, Хафизова, О.Ф., Сагадиев, И.П. (Rizvanov, R. G., Fairushin, A. M., **Benim, Ali C.**, Khafizova, O. F., Sagadiyev, I. F., "Повышение точности изготовления сварных конструкция применением вибрационной обработки в процессе сварки", (Accuracy increase in manufacturing of welded structures by vibration treatment during process of welding) Монтажные и специальные работы в строительстве, Москва (Assembling and Special Topics in Construction, Moscow), ISSN 0027-0040, 10 (2015) 12-15.

Ризванов Р.Г., **Беним, Али С.**, Файрушин А.М., Каретников Д.В., Хафизова О.Ф. (Rizvanov, R. G, **Benim, Ali C.**, Fairushin, A. M., Karetnikov, D. V., Khafizova, O.F.) "Численное моделирование колебаний корпуса аппарата при его вибрационной обработке в процессе сварки", (Numerical simulation of vessel shell oscillations induced by the vibratory treatment during welding) Электронный научный журнал «Нефтегазовое дело» (Electronic Scientific Journal "Oil and Gas Business", ISSN 1813-503X) 6 (2015) 308-322.

Oclon, P., Lopata, S., Nowak, M., **Benim, A. C.**, "Numerical Study on the Effect of Inner Tube Fouling on the Thermal Performance of High-Temperature Fin-and-Tube Heat Exchanger", Progress in Computational Fluid Dynamics 15 (2015) 290-306.

EDITORIAL STAFF



Prof. Dr. A. C. Benim
(alicemal.benim@hs-duesseldorf.de)

This is an overview, which is not claimed to be exhaustive. Some activities have been omitted due to space limitations. We apologize, in advance, for any activity that might have unintentionally be omitted due to an oversight.



T. Atalay
(tuba.atalay@hs-duesseldorf.de)