

Master Erneuerbare Energien – Master Renewable Energy Management – Bachelor
Erneuerbare Energien – Bachelor Elektrotechnik / Studienrichtung Elektrische Energietechnik

Review – What has CIRE been up to over the last months?

IESC - International Energy and Sustainability Conference



At the 7th International Energy and Sustainability Conference 2018 - "Technical Challenges of Energy Transition" on May 17th + 18th nearly all technical aspects of energy transition were discussed within 8 sessions.

99 attendants signed up for the 7th International Energy and Sustainability Conference 2018 in Cologne. Further 200 students participated in the public lectures.

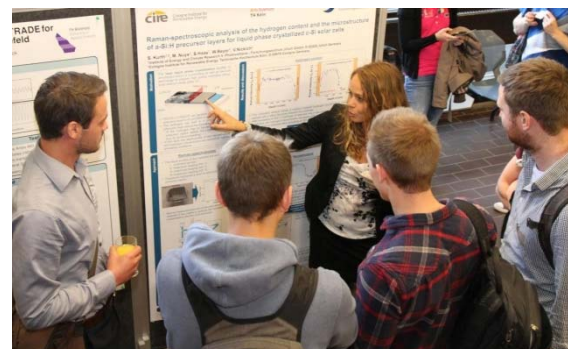


The participants came from countries such as Japan, Senegal, Brazil, the United

States, the United Kingdom, Poland, the Netherlands and different parts of Germany.

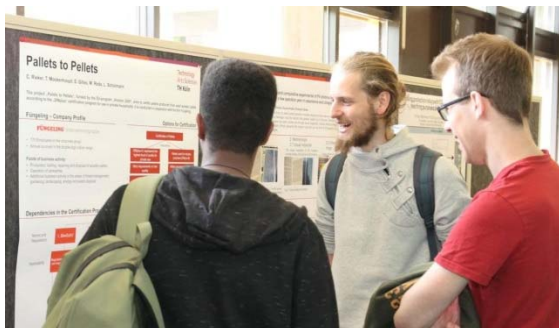
The universities involved in the conference besides the TH Köln (DE) were Université Assane SECK de Ziguinchor (SN), Gaston Berger University (SN), Alioune Diop University of Bambey (SN), Rutgers University (USA), Farmingdale State College (USA), Universidade Federal do Ceará (BR), The Hague University of applied sciences (NL), Warsaw University of Technology (PL), Durham University (UK), RWTH Aachen University (DE), Hochschule Bonn-Rhein-Sieg (DE), Fachhochschule Bielefeld (DE), Heilbronn University of Applied Sciences (DE).

Participating companies and scientific research institutions were ITOCHU Techno-Solutions (JP), CityTec BV (NL), Simulation Research (NL), German Aerospace Center (DE), Vapora company group (DE), Rheinische NETZGesellschaft mbh (DE), Fraunhofer Institut SCAI (DE), Robert Bosch GmbH (DE), FGH Zertifizierungsgesellschaft (DE), Forschungszentrum Jülich GmbH (DE), werusys GmbH & Co. KG (DE).



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For the second time CIRE (Cologne Institute for Renewable Energy) from the TH Köln offered an international conference as an opportunity for students to have a first access to the medium of a scientific conference. Professors, PhD Students, Master students, Bachelor students as well as international exchange students were able to present their scientific work in form of presentations, papers and posters amongst the other participants of the conference. With two invited lectures that had been public during the conference CIRE offered a further platform for students to enter the scientific community.



Altogether the organizers were quite pleased with the outcome of the conference. Meanwhile the review process for full papers has been finished and the selected papers will be published in IEEE eXplorer in the coming weeks

CIRE's guest professor was invited to Schloss Bellevue



Professor Majid Nayeripour was invited to the annual convention of the Alexander von Humboldt Foundation.

<https://www.humboldt-foundation.de/web/57897858.html>

Majid Nayeripour (born 1971 in Schiraz, Iran, married, 3 children) is a professor for electrical engineering (Intelligent grids and energy systems) and Humboldt Fellow (Georg Forster – research fellowship for experienced researchers) at the Alexander von Humboldt Foundation.

He studied in Iran and received his PhD degree in electrical engineering at the University Tarbiat Modares Tehran. After several Iranian studies and research stays he habilitated 2008 at the University of Schiraz.

Since 2016 he is researching as a guest professor at the TH Köln/ CIRE together with Professor Waffenschmidt.

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In 2017 he was offered a Georg Forster – research fellowship for experienced researchers from the “Alexander von Humboldt Foundation” due to his 18 years of experience in industrial projects and academic studies in Iran. He published more than 110 articles in journals and conference proceeding.

Akwaaba in Cologne – Ghanaian Professors visited CIRE



On June 13th professors from the Ghanaian Technical Universities Accra, Cape Coast and Kumasi visited CIRE in the context of „Partnership for Applied Sciences (Pass)“. The development of practice related degree programs within the field of renewable energy as well as the scientific cooperation possibilities were the main topics.



CIRE has its first own post-doc

We are proud to announce that Dr. Nils Reiners has completed his PhD within our institute. Dissertation:

“ANGLE AND SPECTRAL DEPENDENCE OF THE INTERNAL AND THE EXTERNAL QUANTUM EFFICIENCY OF SOLAR MODULES”



Cooperation with Universidade do Ceará in Fortaleza (Brasil)

Celebrating our 10 years lasting cooperation with Universidade do Ceará at the summer party of TH Köln. In the center of the photo: Brazilian cooperation coordinator Professor Fernando Antunes.



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TV production about Smart Cities

CIRE recently had a ZDF camera team visiting our work. One day long the team documented the achievements within the European project CELSIUS together with Professor Ingo Stadler and Professor Thorsten Schneiders and their students. The documentation on Smart Cities will be broadcasted in Oktober.



Smart Solutions for Enterprises – Workshop @ TH Köln

What are the benefits of using smart technologies in small and medium-sized enterprises (SMEs)? Under the topic “Energy DIGITAL” the German Association for Small and Medium-sized Businesses (BVMW) invited enterprises to a workshop at TH Köln.



About 40 entrepreneurs gathered information about the application potential of smart technologies such as “Smart Home” or “Smart Metering” in enterprises. During the workshop, various application examples as well as the state of research (e.g. of energy data analytics) were presented. Furthermore, the workshop participants had the opportunity to test and try out smart technologies on mobile demonstration walls.

The workshop was carried out within the framework of the research project “Smart technologies for enterprises”. The project covers investigations in benefits and added values using smart technologies in SMEs under technological, software-specific and socio-economic aspects.

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Bachelor-Thesis: Solutions for increasing energy efficiency at the Chocolate Museum Cologne

In her bachelor thesis, Clara Ukat analyzed the energy system at the Chocolate Museum Cologne and developed measures in order to increase energy efficiency.



Photo: Clara Ukat and Dr. Christian Unterberg-Imhoff in front of the chocolate fountain (Picture: TH Köln)

The results of the analyses state a high energy saving potential at the Chocolate Museum. About 30 % of the total energy consumption can be saved by implementing energy efficiency measures. During the thesis, a mobile energy measuring case was used in order to measure specific energy flows in the museum.

Climate and Energy Days in Wanlo (Mönchengladbach)

Students from TH Köln presented the results of the feasibility study for renewable energy in Wanlo during the local Climate and Energy Days. Furthermore, the students answered

questions from the citizens concerning their project.

As a further aspect, the smart energy team supported the students and set up smart home demonstrators as well as an expert roundtable for smart home. Along with the citizens of Wanlo, different topics concerning energy use and energy efficiency were discussed.



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CIRE train the trainer in Senegal

Within the frame of PESEREE, a DAAD financed project under the direction of Professor Ulf Blieske, the CIRE of TH Köln offered a train the trainer for their partner Universities in Senegal in the beginning of August 2018.



Two scientific assistants of TH Köln, Tobias Kunze and Martin Witt, travelled to Dakar and held the seminar for eight Senegalese counterparts. Stefanie Könen-Sagui organized the workshop and coordinated the activities.



The objective was to enable the educational staff to use technical didactic material for their application oriented master studies in Renewable Energies.

Already in February 2017 forty licenses of the PV-Planning-Software *PV*SOL* and

four experimentation kits of *leXsolar* have been organized by TH Köln and distributed to the Senegalese Partners in Ziguinchor, St. Louis, Bambey and Thiès.



The training deepened user expertise and didactical methods for the implementation of the software and the kits within practical courses for the master students.



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IRES Düsseldorf: Professor Ingo Stadler will take over the conference chair

In March the 12th International Renewable Energy Storage Conference (IRES) took place in Düsseldorf. Many CIRE students and PhD students went there. And what has been great to see is that many former students are now working in various companies that presented at IRES.



Professor Ingo Stadler will take over the conference chair in 2019 after Professor Dirk Uwe Sauer from RWTH did that job for the last 12 years.



Sporty CIRE

The team of Professor Thorsten Schneiders is doing energy consultancy at the water ski facilities in Langenfeld. Thanks to this CIRE could use the premises one evening long. This has been a great event with a lot of fun for CIRE members and their families.



Digital energy on tour

In June and July, the smart energy team visited and organized events and workshops with various customers using smart technologies. In the following, some impressions of the different events are summarized:



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12th June 2018 – Workshop: Energy efficiency 360° in cooperation with Gildemeister Energy Efficiency GmbH. The participants of the workshop (industrial companies / entrepreneurs) informed themselves about energy efficiency solutions. Professor Johanna May presented activities of the Cologne Institute for renewable Energy (CIRE).



09th July 2018 – Workshop: Future City "Langenfeld". In the workshop, local retailers got informations for digital retailing solutions. Professor Thorsten Schneiders and a student group presented their results of a project work. The students analyzed the potential for smart technologies for the local retail shops.



10th July 2018 – Road show: "Energieeffizienz konkret" by the EnergyAgency.NRW. Lukas Hilger held a speech about the possibilities for energy efficiency analyses in small and medium sized enterprises and first results of the research project. At the exhibition "market of possibilities" the smart energy team presented a mobile demonstrator with use cases for a smart office based on smart home technologies.



11th July 2018 – Information event for the district government of Münster. The director of the Virtual Institute Smart Energy (VISE) Professor Andreas Löschel (University of Münster) presented the research approach of the VISE-projects. Additionally, the smart energy team from CIRE showed smart energy demonstrators. The representatives of the district council could test various smart solutions and the team answered questions about digitalization in the energy sector and digital learning methods in universities.

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CIRE on tour

Professor Humpert gave a speech at the high-temperature superconductor symposium ZIEHL VI (Zukunft und Innovation der Energietechnik mit Hochtemperatur-Supraleitern) in Berlin in March.

Professor May held a speech (“Wie nachhaltig sind Energieeffizienz-Technologien in der Elektrotechnik?”) at the Fraunhofer IZM in Berlin on June 14th.

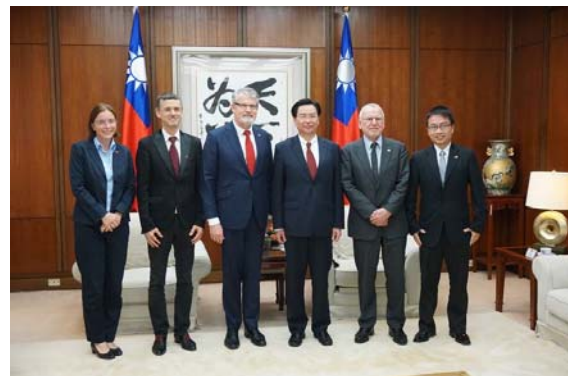
Professor Stadler held a speech at the 2018 Germany and Taiwan Energy Forum in May.



At the Energy Forum



German delegation within the Taiwan Parliament



Together with the Minister of Foreign Affairs Jaushieh Joseph Wu

Professor Schneiders held a speech at the smart metering symposium at the “Verbraucherzentrale NRW” in Düsseldorf in March. The event focused on smart services that will be available to consumers through the future rollout of smart meter technologies in Germany.

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(Photo origin: Verbraucherzentrale NRW)

In addition, the smart energy team from Professor Schneiders set up a smart home demonstrator. Thereby, the participants were able to experience "hands-on" smart home technology. This allows the direct testing of smart home systems and the evaluation of the functionality via interviews and surveys with the participants of the event.

Professor Ingo Stadler held a speech at Fachforum Energiewirtschaft at Betonbau in Waghäusel close to Heidelberg.

More than 1,000 participants have been discussing new trends in energy systems. Ingo Stadler gave a speech on batteries and other energy storage alternatives, regulation and policy barriers.

Also in this event former CIRE students were present. René Brockmann (last photo, first generation students who went for exchange to Fortaleza, Brasil) is now working for Betonbau.



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Professor Ingo Stadler held a speech at the tpa event ENERGY TOMORROW. Austria presented its "mission 2030 Energiestrategie" in Wolke19 in Vienna.

Ingo Stadler had the opportunity to talk about "Energy Transition: Now or Never". Having aims is not sufficient. Taking action is needed.

Recent publications of interest

C. Humpert, H. Seufert, R. Brüstle, F. Kasten, G. Pfeiffer and R. Schumacher, "Breakdown characteristics of liquid nitrogen in non-uniform electric fields," 2018 12th International Conference on the Properties and Applications of Dielectric Materials (ICPADM), Xi'an, 2018, pp. 172-176.

doi: 10.1109/ICPADM.2018.8401187

I. Stadler + M. Sterner: "Urban Energy Storage and Sector Coupling" In: "Urban Energy Transition - Renewable Strategies for Cities and Regions" - Editors: Peter Droege - eBook ISBN: 9780081020753; Paperback ISBN: 9780081020746; Imprint: Elsevier; Published Date: 17th August 2018

Newsletter

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The second edition of Professor Ingo Stadler's book – *Energiespeicher: Bedarf, Technologien, Integration* – has now been published in Springer.

CIRE lecture series (CIRE-Vortragsreihe)

In the course of the CIRE lecture series we were able to introduce the following guest speakers:

Prof. Dr. Karsten Weber - Ko-Leiter des Instituts für Sozialforschung und Technikfolgenabschätzung (IST) an der Ostbayerischen Technischen Hochschule (OTH) Regensburg – *„Wertebasierte Gestaltung der Energiewende“*

Dr. Andreas Hauer - ZAE Bayern – *„Flexible Sector Coupling -The Impact of Energy Storage on Sector Coupling“*

Prof. Dr. Konrad Mertens - FH Münster – *„Do Photovoltaics make sense in countries like Germany?“*

Dipl. Ing. Frank Günther - Versorgungsbetriebe Bordsesholm GmbH – *„Aufbau eines zellularen Inselnetzbetriebes mit Batteriespeichern“*

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