

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?

CIRE founded its own PhD Seminar

Since last Fall CIRE has had a monthly PhD-Seminar with 22 present and future PhD Students. As peers all CIRE Professors coach the ongoing scientists.



CIRE at the German-African Business Summit 2019 (GABS)

A delegation of NRW.international GmbH and TH Köln travelled to Accra/Ghana for the German-African Business Summit 2019(GABS) Conference.



The TH Köln represented by Thomas Mockenhaupt presented the concept of the pyrolysis furnace, for the production of cocoa shell coal from cocoa shells for cooking.

A Ghanaian partner Sunhut Enterprise could be won for the continuation of the project.



Professor May was invited to the “Dialog for Energy Research”

The Ministry of Economics (NRW) invited players out of Industry, Economics and Science to discuss the strategic orientation of energy research in North Rhine-Westfalia.

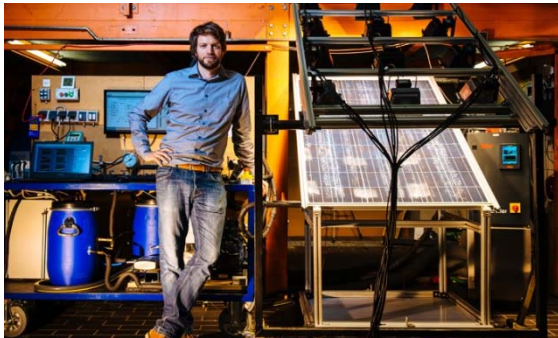


(Photo: MWIDE NRW/E.Lichtenscheidt)

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

Press release of the ministry:
<https://www.wirtschaft.nrw/pressemitteilung/erster-energieforschungsdialog-des-landes>

CIRE PhD-Student Johannes Rulof presented his interim result



For the last four years Rulof has been working on a heat pump system for PV units.

https://www.th-koeln.de/hochschule/verdampfen-mit-sonnenkraft_61193.php

Professor Rieker started a new joint research project – EWB

Within the initiative of the Federal Ministry of Economic Affairs and Energy a hybrid energy system for energy self-sufficiency among wine growers shall be established.

Professor Waffenschmidt started a new research project – Quartierspeicher

International Renewable Energy Storage Conference (IRES 2019)

The European Association for Renewable Energy EUROSOLAR held its 13th International Renewable Energy Storage Conference (IRES 2019) on March 12-14, 2019 as an integral component of the International Renewable Energy Storage / Energy Storage Europe (IRES/ESE) Conference and Exhibition at the Messe Düsseldorf, Germany.

The IRES conference core is dedicated to scientific findings on storage systems in the world of smart and distributed energy resources - its central focus on storage technology encompasses also legal, policy, network and market aspects. The ESE track complements this focus with business and finance dimensions of these technologies in the global market.



Professor Ingo Stadler for the first time chaired the world's largest conference on energy storage. Several PhD students of Cologne Institute for Renewable Energy CIRE participated in the organization of the conference and CIRE members also participated with contributions to the oral and poster session program.

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



CIRE and VISE at E-World 2019

Under the headline "smart, digital and innovative", 780 exhibitors including companies and start-ups from the energy industry presented themselves at the E-World 2019 in Essen (Germany). The virtual institute Smart Energy was also present at a common booth of Energy Hills e.V. in hall 4 we presented our work and made many interesting contacts. Hall 4 was themed "Innovations" and numerous start-ups and research institutions were represented - just the right environment for the Virtual Institute and the CIRE. There were many new, exciting approaches for hardware and software solutions as well as for digital services and business models around the energy supply. Especially the areas of digital metrology and sector coupling in the mobility sector (e.g. through innovative charging station concepts) stood out clearly.

Visit CDU parliamentary delegation on the second day of the fair

On the second day of the fair a delegation from the NRW state parliament visited us: Romina Plonsker, Hennig Rehbaum and Stephan Zitzler from the Committee for

Economic Affairs, Energy and State Planning. They showed great interest in the research topics of the VISE and were enthusiastic about the interdisciplinary collaboration and cooperation in the Virtual Institute.

The example of smart deceives for heating control was presented to the politicians simple solutions for saving energy in the household sector. This includes a system that uses intelligent self-learning algorithms to intelligently control energy consumption in the home and thus help save energy.



Photo: Visit of the CDU delegation (Romina Plonsker, Hennig Rehbaum and Stephan Zitzler from the Committee for Economic Affairs, Energy and Regional Planning) at the VISE stand.

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

Student organized excursion

46 students visited a waste-fueled power station, SMA, Enercon, a stone coal burning power plant, an offshore-lading port and a competence center.



CIRE Student Lukas Kiefer on WDR5

<https://www1.wdr.de/mediathek/audio/wdr5/wdr5-morgenecho-interview/audio-junge-menschen-fuer-den-klimaschutz-100.html>

New patent by Professor Johanna May

EP 2 685 539 B1 Energy storage device for a photovoltaic system and method for operating an energy storage device of a photovoltaic assembly.

The patent basically describes a hybrid battery not consisting of several battery types but consisting of different qualities of the same battery type. So the lower quality (cheaper) battery part does not participate in all the cycles thus increasing its life expectancy. Therefore, a lower cost battery module with long life is expected.

Poster presentation

In March our interdisciplinary student groups showed their project results in a poster presentation.



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

Tech Camp in Borken (Germany): How can current research results be drivers of innovation for small and medium-sized enterprises?

Research innovations for small and medium-sized enterprises



How can current research results be drivers of innovation for small and medium-sized enterprises? Under this heading the first “Tech Camp” organised by WFG Borken took place in Raesfeld. Entrepreneurs had the possibility to catch up on information about new technologies and their application field in small enterprises. In this context, Lukas Hilger, research associate at CIRE (TH Köln), gave a presentation about “Smart technologies for enterprises” and presented innovative solutions to increase energy efficiency. The participants also had the possibility to fill in a questionnaire about the user’s behavior as well as the state of knowledge concerning smart technologies. The results will be processed in the current research project “Smart technologies for enterprises”, coordinated by Prof. Thorsten Schneiders and Lukas Hilger (TH Köln, CIRE).

Review of the first VISE annual conference on the 6th of December 2018 in Cologne

The first annual conference of the “Virtual Institute Smart Energy” (VISE) was a complete success - around 80 representatives from companies, research institutes, universities and associations listened to exciting lectures and held lively discussions.



The event kicked off with Michael Geßner, Head of Department for Energy at the NRW Ministry of Economic Affairs, Innovation, Digitalization and Energy. He outlined the genesis of the Virtual Institutes in NRW and the associated strategy of the state government.

In the two following keynote speeches, Jochen Schwill, CEO of Next Kraftwerke GmbH in Cologne, described very clearly the effects of the introduction of the mixed price procedure of October 15th on the electricity market. Prof. Wolfgang Ketter from the Institute of Energy Economics at the University of Cologne (ewi) gave interesting insights into the application of artificial intelligence in the context of the energy system. Both lectures were

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

followed with great interest by the attendees and were discussed afterwards.

The second part of the event focused on the “Virtual Institute Smart Energy” - the participants got an insight into the four VISE subprojects. The beginning was made by Dr. Hawal Shamon from Forschungszentrum Jülich about the subproject VISE Households, in which business models are explored in the context of energy demand behavior in households (for example through the use of smart homes based on user preferences). Afterwards Prof. Thorsten Schneiders from the TH Cologne presented first insights from the subproject "Smart Technologies for Businesses" and stated that the exploitation of potential savings by digital technologies is hardly noticed by SMEs.

PD. Dr. Dietmar Lindenberger from ewi reported on the subproject VISE-Regional Virtual Power Plants and emphasized the good interdisciplinary cooperation of the participating institutes on the basis of the planned modeling of virtual power plants.

The final event was the subproject "Development VISE" - and that's exactly what Prof. Andreas Löschel from WWU Münster took advantage of: It was discussed very intensively about the future topics of the VISE. Among other things, questions were asked about the applications of smart technologies in the field of heating technology, in the housing industry and in the Smart City. Other important aspects included future communication channels, the provision of technologies to end users and the training

of professionals to work on and with these technologies. In addition, the future role of energy traders in the increasing use of artificial intelligence as well as the general change in the tariff landscape are important topics for the actors.

The feedback from the participants was consistently positive, especially the lively exchange during the discussions and during the break were praised.

CIRE on tour

- Eberhard Waffenschmidt, Till Paulzen, Alexander Stankiewicz: "Common battery storage for an area with residential houses" at the International Renewable Energy Storage (IRES) conference 2019, Düsseldorf, Germany, 12.-14.Mar.2019

http://www.100pro-erneuerbare.com/publikationen/2019-03-Waffenschmidt-IRES/Waffenschmidt-Common_Storage.htm

- Silvan Rummeny, Eberhard Waffenschmidt: "Autarkiebetrieb eines kommunalen Stromnetzes mit Batterie und Erneuerbaren Energien" at Zukünftige Stromnetze, Berlin, 30.-31.Jan.2019.

<http://www.100pro-erneuerbare.com/publikationen/2019-01-Rummeny-Zukunftsnetze-Autarkie/Rummeny-Autarkiebetrieb.htm>

- Professor Waffenschmidt at TU-München 11.3.19, Arbeitskreis Energie des VDI

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

<http://www.100pro-erneuerbare.com/publikationen/2019-03-Waffenschmidt-TUM/Waffenschmidt-Energieversorgung.htm>



- Professor Stadler held a workshop on Energy Storage Solutions for Energy Transition Processes at partner university Universidade Federal do Ceará, Brasil. February 15th 2019



- Professor Stadler and the seven largest universities of applied sciences UAS7 met with UNISINOS in Porto Alegre in November.



Recent publications of interest

3 Articles in „Kompendium der Forschungsgemeinschaft :metabolon 2015 – 2018“ ISSN 2199-4498

- Umwelt- und klimafreundliche Wärmeversorgung mittels Biomasse von Wohngebieten im Bestand sowie innovative Wärmeversorgungskonzepte für Neubaugebiete im Rheinisch-Bergischen Kreis (S. 7-12)

- Kakaoschalen-basierter Pyrolyseofen zur Bereitstellung von Wärme zum Kochen in Westafrika (S.13-18)

- Untersuchung der Wirkung einer biologischen Vorbehandlung von Stroh für den optimierten Einsatz von Faserstoffen in der Biogasproduktion (S.19-25)

CIRE lecture series (CIRE-Vortragsreihe)

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

8.5. - Dr. Thomas Goette - GreenPocket GmbH

22.5. - Dr. Rüdiger Haude – RWTH Aachen

CIRE is on Facebook: @cire.thkoeln