

Arbeitskreis Energie (AKE)

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The programme of the Energy Working Group (Arbeitskreis Energie, AKE) presents a wide range of energy technologies based on geological, chemical and physical research in conjunction with engineering developments. Furthermore, the evening talk of the conference – presented by M. Winter – is thematically associated to the AKE programme. The sequence of sessions is imposed to some extent by constraints in the availability of the speakers.

The relevance of the German “Energiewende” is increasingly being put into context by the rapid international evolution of energy generation and use. In particular renewable energies push the role of electricity as the future key energy vector both for stationary applications and for the mobility sector. Wind (AKE 6) and photovoltaic generation (AKE 2) dominate; both are areas with continuing substantial developments. However, their strongly fluctuating power output imposes a reconsideration of the classical electricity systems (AKE 7). In this context the development of batteries and fuel cells (AKE 1) and of chemical storage and sector coupling (AKE 8) is pursued actively in order to mitigate the temporal imbalance between generation and demand.

While the global market for electrical individual mobility is rapidly evolving (AKE 1), alternative combustion fuels are considered for improving the environmental balance of air traffic (AKE 9). The German regulatory mechanisms for supporting the mass market of clean energy technologies are discussed in the session (AKE3).

CO₂ sequestration and storage is discussed for mitigating the atmospheric green-house effect. If it shall play a role, then huge volumes for safe geological CO₂ storage will be needed (AKE 10). Fusion research is pursued in a future perspective for clean and safe electricity generation (AKE 4). It would massively reduce the need of dealing with long-term storage of nuclear waste which, together with the associated decommissioning, continues to be a most relevant issue for current fission reactor technology (AKE 5) as are the safety and security aspects (AKE 11, a joint AKE/AGA session).

Übersicht der Hauptvorträge und Fachsitzungen

(Hörsaal S Aula)

Hauptvorträge

AKE 1.1	Mo	9:00– 9:30	S Aula	Energy Density, Lifetime and Safety - Not Only an Issue of Lithium Ion Batteries — •MARTIN WINTER, FALKO SCHAPPACHER, MARKUS BÖRNER, ALEX FRIESEN
AKE 1.2	Mo	9:30–10:00	S Aula	Fuel Cells - A complement and an Alternative to Batteries on the Path to Application — •K. ANDREAS FRIEDRICH
AKE 2.1	Mo	11:00–11:30	S Aula	Roadmap and roadblocks for multi-junction device technology based on metal halide perovskites — •EVA UNGER
AKE 3.1	Mo	16:45–17:15	S Aula	Die Defizite der Energiewende — •MANUEL FRONDEL
AKE 4.1	Mo	17:15–17:45	S Aula	Fusion Research - recent progress and perspectives — •ANTONIUS DONNÉ
AKE 5.1	Di	8:30– 9:00	S Aula	Research for the safe management of nuclear waste — •DIRK BOSBACH
AKE 6.1	Di	9:00– 9:30	S Aula	Smarte Rotoren für kosteneffiziente Windenergieanlagen — •JAN TESSMER
AKE 6.2	Di	9:30–10:00	S Aula	Beiträge der Windphysik zum Ausbau der Windenergienutzung — •MARTIN KÜHN
AKE 7.2	Di	10:15–10:45	S Aula	Surplus electricity and storage under conditions of intermittent supply — •FRIEDRICH WAGNER
AKE 8.1	Di	11:00–11:30	S Aula	Power to Gas Konzepte für die Energiewende — •FRANK GRAF
AKE 8.2	Di	11:30–12:00	S Aula	Sektorenkopplung als Teil der Energieversorgung von morgen — •RENÉ SCHOOF

AKE 9.1	Di	16:45–17:15	S 8	Verändern alternative Treibstoffe die Emissionen des Luftverkehrs und seine Klimawirkung? — ●CHRISTIANE VOIGT
AKE 10.1	Di	17:15–17:45	S 8	Geological CO₂ storage - concepts and state of knowledge — ●AXEL LIEBSCHER
AKE 11.1	Mi	16:45–17:15	S Aula	Nuclear Power and Nuclear Safety Post Fukushima — ●CHRISTOPH PISTNER, MATTHIAS ENGLERT
AKE 11.2	Mi	17:15–17:45	S Aula	Safeguards and Non-Proliferation experience from an IAEA perspective — ●TARIQ RAUF
AKE 11.3	Mi	17:45–18:15	S Aula	Civil Nuclear Power - The Cyber Security Perspective — ●GUIDO GLUSCHKE

Fachsitzungen

AKE 1.1–1.2	Mo	9:00–10:00	S Aula	Electrochemical Storage: Batteries and Fuel Cells
AKE 2.1–2.4	Mo	11:00–12:15	S Aula	Renewable Energy: Photovoltaics
AKE 3.1–3.1	Mo	16:45–17:15	S Aula	Economics of Energy Supply and Use
AKE 4.1–4.1	Mo	17:15–17:45	S Aula	Future Perspectives: Fusion Energy Research
AKE 5.1–5.1	Di	8:30– 9:00	S Aula	Nuclear Decommissioning and Storage
AKE 6.1–6.2	Di	9:00–10:00	S Aula	Renewable Energy: Wind Energy
AKE 7.1–7.2	Di	10:00–10:45	S Aula	Renewable Energy: Aspects of Intermittent Generation
AKE 8.1–8.5	Di	11:00–13:00	S Aula	Sector Coupling, Chemical Conversion and Storage of Renewable Energy
AKE 9.1–9.1	Di	16:45–17:15	S 8	Alternative Fuels for Air Traffic
AKE 10.1–10.1	Di	17:15–17:45	S 8	Future Perspectives: CO₂-Storage
AKE 11.1–11.3	Mi	16:45–18:15	S Aula	Nuclear Energy and Security (Joint Session AKE-AGA)

Mitgliederversammlung Arbeitskreis Energie

The annual members' meeting of the AKE (with elections of the AKE chairman and board) will be held during the AKE spring meeting in Bad Honnef on April 6 / 7, 2016.