SPEAKER

NAME
Dr. Jan Hartwig

CONTACT
CMBlu Energy AG
Industriestraße 19
D-63755 Alzenau
Germany
E-Mail: Jan.Hartwig@cmblu.de

BIOGRAPHY

Dr. Jan Hartwig is an organic chemist at CMBlu Energy AG, a developer and producer for large stationary batteries. As the leader of electrolyte development, he is responsible for the active material in the redox-flow batteries. This includes securing the supply and processing of raw material from Lignin, developing new organic electrolytes and transferring them into production.

During his studies in Hannover he spent two semesters at the Stanford University and one semester at the University of Cambridge as a visiting researcher. After graduation he started his career at CMBlu where he successfully built up the R&D department for organic electrolytes. As the companies first organic chemist he took part in the rapid growth of CMBlu from 4 to more than 70 employees.

In his free time Jan enjoys spending time with his wife and two daughters, flying a glider or reading books.

LECTURE TITLE

Large Scale Energy Storage based on Lignin

In recent years, concerns resulting from environmental consequences of exploiting fossil fuels as the main energy sources have led to an increasing demand of renewable energy systems e.g. solar and wind power generation. The intermittent nature of renewable energy sources however makes it difficult to fully integrate these energy sources into electrical grids. A solution to this problem are large-scale energy storage systems, which are vital for distributed power generation development and grid stabilization. One of the most promising technologies in this field are redox-flow batteries (RFBs), first developed by NASA during the 1970's. RFBs are electrochemical systems that can repeatedly store and convert electrical energy to chemical energy and vice versa when needed. Redox reactions are employed to store energy in the form of a chemical potential in liquid electrolyte solutions, which are pumped through electrochemical cells. To meet the worldwide need for energy storage systems which exceeds the multi TWh capacity, a resource in the multi-million-ton scale is needed. Lignin is one of the few renewable raw materials that is already produced in such quantities and at the same time the major share is burnt. It is composed of aromatic ring moieties that form the core structure of most organic electrolytes. The abundance of the material without any competing application makes Lignin the ideal raw material source for organic electrolytes in large scale redox-flow batteries.