**Electrochemistry in energy storage and conversion**

Deepak Pratap Singh
1Center of Energy Innovation and 2MESA Institute
University of Twente, the Netherlands, Email: d.p.singh@utwente.nl

**Abstract:**

For centuries, the electrochemistry has been an integral part of our societal and industrial progress. Its application ranges from traditional electroplating for corrosion protection to the state of art sensors for health care and chemical industry, as well as for the energy storage/conversion to efficiently utilize the renewable energy production. Today, as we are marching towards realizing an emission free and clean energy society, the electrochemical methods are going to lay the foundation for this endeavor and create a new energy economy. This lecture will focus on energy storage in batteries, their application, current trends, challenges and potential remedies. Working principals of various battery chemistry and concept will be presented and compared with other electrochemical devices/methods for electric mobility and storage application.