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**Lecture**

# From Clusters to Crystals: A Bottom-up Design of Energy Materials

Speaker	Prof. Dr. Peru Jena, Virginia Commonwealth University, Richmond, VA, USA
Moderator	Arndt Remhof
Audience	Everybody interested in Energy Materials
Date	4. March 2016, 14:00
Venue	Empa, Dübendorf, Theodor-Erisman-Auditorium, VE102

**Abstract**

Prof. Jena will outline some of the material challenges in energy storage and conversion with particular emphasis on hydrogen storage, Li-ion batteries, and perovskite solar cells. A common feature of all these materials is that they are complex salts where their negative ion components can be identified as superhalogen clusters that mimic the chemistry of halogens. This realization has made it possible to use the vast advances in cluster science to design novel materials for energy applications. These results based on density functional theory have predictive capability. Examples of experimental verification of some of the predicted results will be presented.

**Speaker's profile:**

Dr. Peru Jena received his Ph. D. in Physics from the University of California at Riverside in 1970. He has been at Virginia Commonwealth University since 1980 where he is currently Distinguished Professor of Physics. In addition, he served as Program Director at the Materials Science Division of the National Science Foundation during 1986-87 and as Jefferson Science Fellow and Senior Science Advisor at the US Department of State during 2007-08. Dr. Jena's research covers a wide range of topics in nano-structured materials, condensed matter Physics, and materials Science. His current research is focused on structure-property relationships of nanostructured materials. Dr. Jena is the author of nearly 525 papers, including 12 edited books.



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