



2<sup>nd</sup> International Symposium on  
**E**nergy **C**hallenges & **M**echanics

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Aberdeen, Scotland, UK

## **From Nanometers to Terawatts. Pending Breakthroughs in Materials for Energy**

Pedro Gomez-Romero

*Catalan Institut of Nanoscience and Nanotechnology, ICN2 (CSIC-ICN), Campus UAB, E08193  
Bellaterra (Barcelona) Spain*

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Global warming was not a strong enough argument. But the compulsion for energy security and the end of cheap oil and are definitively adding to climate change concerns to finally boost a long overdue change towards a new and sustainable model of generation, management, storage and consumption of energy.

In this conference we will present a brief introduction to the overwhelming challenges we will have to face on our way to this sustainable energy model and the many lines of action that should be taken to tackle this problem. This should include technological and social aspects, all intertwined to the limit, but we will center on science and technology and specifically on the scientific breakthroughs involving materials for a variety of energy applications. Hydrogen and fuel cells, biofuels, solar energy, batteries, supercapacitors, CO<sub>2</sub> reduction, are all in bad need of radical improvement. But incremental technological evolution might not be enough to ensure the energy of our future. Not one but many pending scientific revolutions will be necessary for this task. Glancing at the intersection between Materials Science, Nanoscience and Electrochemistry, we will discuss some of the needed breakthroughs and the latest discoveries related to novel materials made along the path to a sustainable energy model.

**Keywords:** energy materials; sustainable model; solar conversion; energy storage; hydrogen economy



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## 能源挑战与力学国际研讨会摘要模板

John Smith<sup>1\*</sup>, 張三<sup>2</sup>, 李四<sup>3</sup>

<sup>1</sup>*School of Engineering, University of Aberdeen, Aberdeen AB24 3UE, UK*  
*john.smith@abdn.ac.uk*

<sup>2</sup>*Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign,*  
*Urbana, IL 61801, USA*  
*szhang@uiuc.edu*

<sup>3</sup> *中国 北京清华大学工程力学系, 北京 100084*  
*li4@tsinghua.edu.cn*

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