电分析化学系列学术报告

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研究方向	锂离子电池		
建 议 人	彭章泉　研究员	主 持 人	彭章泉　研究员
报告时间	12 月 17 日（星期二）上午 9：00	报告地点	无机分析楼一楼会议室
单　　位	New Energy Center of National Institute of Clean-and-low-carbon Energy (NICE), Shenhua Group		
电　　话		电子邮箱	
出生年月			
报告人背景 	Yu Ren received BS in 2000 with supervisor Prof. Yingcai Long and MS in 2004 with supervisor Prof. Heyong He from Fudan University in the field of porous silicates, adsorption, and catalysis. After working for 3 years in fluoropolymer coating industry, he went to UK and worked the on Li-ion batteries and nanoionics. He obtained PhD degree (2010) under supervision of Prof. Peter Bruce and continued as a Postdoc thereafter. Since September 2011, Dr. Ren joined the New Energy Center of National Institute of Clean-and-low-carbon Energy (NICE), Shenhua Group. Currently Dr. Ren has broad research interests in large scale energy storage (Li-ion batteries, supercapacitors), materials chemistry, and heterogeneous catalysis. Dr. Yu Ren has published more than 40 peer-reviewed research papers and invited reviews, including the work published in *Nature Communications*, *Journal of the American Chemical Society*, *Angewandte Chemie International Edition*, *Chemical Society Reviews etc*. Dr. Ren had also applied 10 Chinese patents including two authorized.		
报告题目	**Multi-dimensional materials for Li-ion batteries**		
内容摘要	Multi-dimensional materials could be defined as the materials that have at least one dimension is smaller than 100 nm (nanosized) and at least another dimension is larger than 100 nm (submicron) sized. In the recent years, nanosized compounds have been widely used as intercalation hosts for Li-ion batteries. Due to the shortened Li+ and e- diffusion length and higher surface area in contact with the Li+ electrolyte, the nanosized electrode materials generally have excellent electrochemical performance. However, the use of nanosized electrode materials, such as 0D nanoparticle, will bring forth the low volumetric energy density, difficulty to manufacture or pack the cell. Alternatively, the combination of nm and μm (multidimensional materials) could partially solve the above issues. Five different examples, including the mesopores and hierarchical materials, are demonstrated for the benefit of the multidimensional structured materials, which has both superior electrochemical performance and compromised energy density. Finally, the perspective of the multidimensional materials is illustrated.		