

Oxide composites with new formulations and architectures for enhancing photocatalysis and photoelectrochemistry

Dr. Vaidyanathan (Ravi) Subramanian (Associate Professor of Chemical Engineering, University of Nevada, Reno, USA/JSPS Fellow)



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Seminar Room D, Sousei Hall, Hokkaido University
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The importance of materials development for solar assisted photocatalysis and photoelectrochemical processes is continuing to be one of the key challenges to commercializing solar energy technologies. Oxide - based nanocomposites have been known to be one of the most promising and stable photoactive materials with multifunctional applications. In this 2-part presentation, I will talk about new strategies to develop such composites. The part 1 of this presentation will feature strategies to examine new formulations using earth abundant elements for Pt-free hydrogen generation with ethanol-based aqueous systems. In the part 2 of this presentation I will discuss approaches to utilize 1D titania with chalcogenide or metal nanoparticle deposits to enhance photocatalytic and photoelectrochemical activity. The representative works presented here highlights the need to sustain research in i) new photoactive formulations and ii) exploring strategies for the design of new architectures, for sustainable and low-cost solar energy utilization.

問合せ先: Professor Bunsho Ohtani (ohtani@cat.hokudai.ac.jp/011-706-9132)

Vaidyanathan (Ravi) Subramanian博士はJSPS Fellowとして京都大学に滞在されています。今回北海道大学触媒化学研究センターに来られたのを機にセミナーを開催することにいたしました。《講演者略歴》1997-1999 MS Chemical Engineering, Univ. Institute of Chemical Technology, Mumbai, India; 1999 – 2004 PhD Chemical Engineering, Univ. of Notre Dame, Indiana; 2004 – 2006 Research Assistant Professor of Chemical Engineering, Univ. of Illinois, Urbana-Champaign; 2006 – 2012 Assistant Professor of Chemical Engineering, Univ. of Nevada, Reno; 2009 – Present – Renewable Energy Center, Solar energy – lead; 2012 – Present Associate Professor of Chemical Engineering, Univ. of Nevada, Reno; 2012 - Present Adjunct Associate Professor of Chemistry Univ. of Nevada, Reno; 2013 – Present Visiting Guest Professor - Indian Institute of Technology, Chennai, India.