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תוכנית האנרגיה ע"ש גרנד

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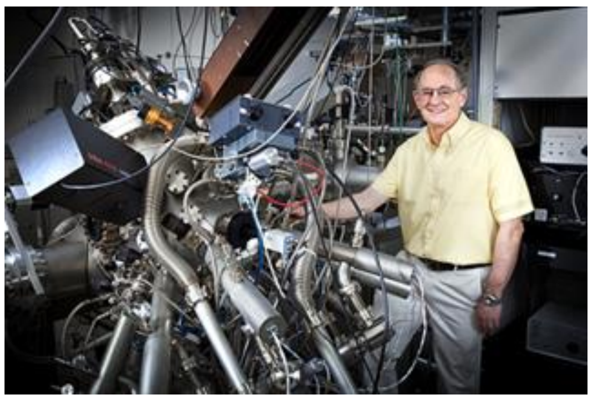

Dr. Scott A. Chambers

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Dr. Scott Chambers is a Laboratory Fellow and Technical Group Leader for the Oxide Epitaxy Group at Pacific Northwest National Laboratory. He is also an Affiliate Professor in the Departments of Materials Science and Engineering and Chemistry at the University of Washington in Seattle, Washington. He received his training in physical chemistry at the University of California at San Diego and Oregon State University. His research focusses on epitaxial oxide film nucleation and heterostructure formation, and the relationships between film growth parameters, structure, composition and functional properties. He has written ~320 peer-reviewed journal articles, invited review articles and book chapters, with over 10,000 citations and an H-index of 59. He has given ~220 invited lectures at conferences, universities and research laboratories all over the world. He also holds 3 U.S. patents. Dr. Chambers is a Fellow of the American Physical Society, the American Vacuum Society, and the American Association for the Advancement of Science.

Will lecture on:

Epitaxial Oxide Heterostructures for Understanding Visible Light Harvesting and Water Photoelectrolysis

Clean energy technology development is critically important in mitigating climate change and insuring a sustainable energy strategy over time The Sun bathes the surface of the Earth with 120,000 TW which far exceeds human energy needs by any measure. Photocatalytic water splitting is one way to harness sunlight to generate a storable, high-energy, carbon-free fuel. Although the water splitting reaction is deceptively simple, it is also highly endothermic (□Go = +237.2 KJ/mole = 1.23 eV), and consists of multiple steps. A key to efficiently utilizing the solar energy to drive this reaction lies in coupling solar photons to the hydrogen evolution reaction (HER: 4H2O + 4e- → 2H2 + 4OH-) and to the oxygen evolution reaction (OER: 4OH- + 4h+ → 2H2O + O2) via e--h+ pair generation, propagation to the electrode surface, and electrochemical conversion. My group's research in this area is oriented toward investigating the fundamental aspects of these processes using model crystalline materials made using molecular beam epitaxy (MBE). MBE facilitates the controlled synthesis of heterostructures involving layers with well-defined compositions and interface structures. In this talk, I will present recent work on two systems: (1) n-SrTiO3/p-Ge(001) and, (2) p-SrxLa1-xFeO3/n-StTiO3(001). We have been exploring the relationships between the materials, electronic, optical and photoelectrochemical properties of these systems and highlights of these investigations will be presented.

Sunday, October 7th, 2018, 10:30am

Wolfson Department of Chemical Engineering

Lecture Hall 6, 2nd floor

Technion City, Haifa

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