

INTERNATIONAL CENTER FOR NANO SYSTEMS

Advances in Nanoscience Applications July 12-13, 2015, Cambridge, UK

July 12, 2015

9:00 - 9:15 Stuart Parkin & Hardy Gross *Opening of the ICNS Workshop on "Advances in Nanoscience Applications"*

9:15 - 9:45 Richard Friend Excitons in organic and hybrid organic/inorganic semiconductor LED and PV structures
9:45 - 10:15 Sam Bader Ferromagnet-superconductor heterostructures: A New Twist
10:15 - 10:45 Bernhard Keimer Spin, charge, and orbital correlations in metal-oxide superlattices

10:45 - 11:15 **Coffee Break**

11:15 - 11:45 Nicola Spaldin Magnetic monopoles and room temperature superconductivity
11:45 - 12:15 Roser Valenti Correlation effects in unconventional superconductors

12:15 - 1:15 **Lunch Buffet in the Foyer**

1:15 - 1:45 Anthony Cheetham Hybrid metal-organic perovskite frameworks
1:45 - 2:15 Barbara Albert Borides with extraordinary properties
2:15 - 2:45 Peter Littlewood Interplay of charge and structure in transition metal oxides
2:45 - 3:15 Jochen Mannhart Conductivity and ferromagnetism in atomically thin SrRuO₃

3:15 - 3:45 **Afternoon Break**

3:45 - 4:15 Shoucheng Zhang Topological insulators and topological superconductors
4:15 - 4:45 Susanne Stemmer Quantum critical phenomena in oxide heterostructures
4:45 - 5:15 Matthias Scheffler Big-data analytics for materials science: concepts, challenges, and hype

5:15 - 6:15 **Poster Session** *Invited Posters & Student's Posters*

7:00 - 8:30 **Conference Dinner at the Dome**
8:30 - 8:50 Mike Coey "A life of Science" - after dinner speech

July 13, 2015

9:00 - 9:30 Aharon Kapitulnik Duality and an emerging Hall insulator phase near the magnetic-field tuned superconductor-insulator transition
9:30 - 10:00 Hyunsoo Yang Characterization of spin-orbit torques in various magnetic heterostructures
10:00 - 10:30 D. D. Sarma Understanding heterostructures with high energy photoemission spectroscopy

10:30 - 11:00 **Coffee Break**

11:00 - 11:30 Naga Phani Aetukuri Batteries: challenges at the intersection of physics, chemistry and materials science
11:30 - 12:00 Binghai Yan Topological metal: from Shockley states to topological states
12:00 - 12:30 Judith Driscoll Tunable Nanionics in Epitaxial Oxide Nanocomposite Thin Films

12:30 - 1:30 **Lunch Break (seated)**

1:30 - 2:00 Eberhard Bodenschatz Micromachines in the Brain
2:00 - 2:30 Sadamichi Maekawa Mechanical effects in spintronics
2:30 - 3:00 C. N. R. Rao Artificial Photosynthesis and the generation of hydrogen by water splitting

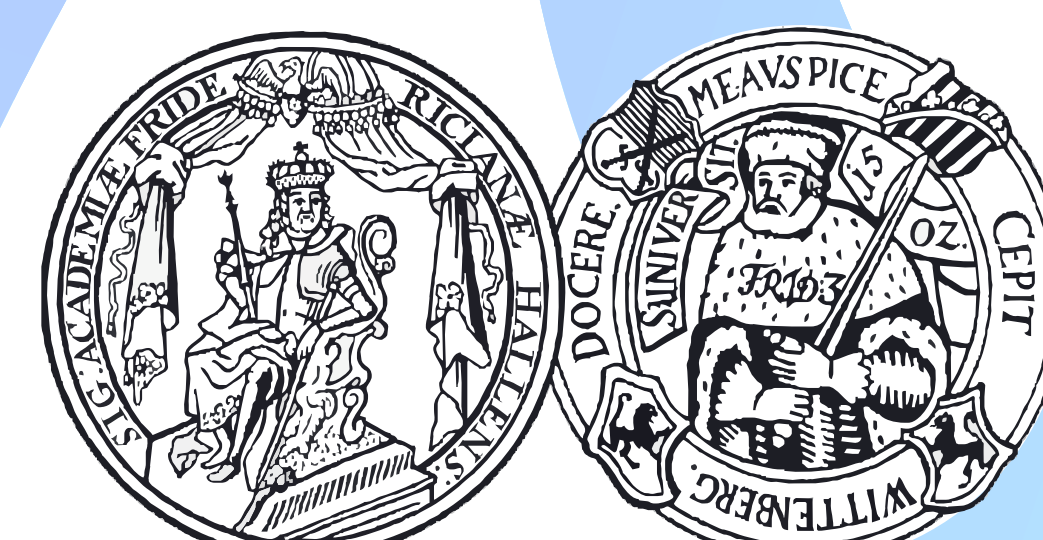
3:00 - 3:30 **Afternoon Break**

3:30 - 4:00 Theo Rasing Ultrafast spintronics: optical manipulation of Spins
4:00 - 4:30 Russell Cowburn Novel applications of perpendicular magnetic anisotropy: 3-dimensional MRAM and cancer therapy
4:30 - 5:00 Masamitsu Hayashi Control of spin current and magnetism in magnetic heterostructures

5:00 - 5:15 Stuart Parkin & Claudia Felser - *Closing and Outlook*



ICNS



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