

**COST CM1104: “Reducible Oxides”, WG4 meeting  
May 9-10, 2013**

*Meeting Location:*

Room E7 (Ground floor) Department of Physics and Astronomy  
University College London, Gower Street, London WC1E 6BT

**All talks 25 min + 10 min discussion**

*Scientific Programme:*

**Thursday, May 9**

12.50 – 13.00 – Welcome and Introduction – **Alexander Shluger**

**Session 1:** TiO<sub>2</sub> surfaces I. Discussion Leader –

13.00 – 13.35 **Ladislav Kavan** - Lithium-Insertion into Various Forms of Titanium Dioxide: Electrochemical and Raman Spectro-electrochemical Study

13.35 – 14.10 **Thomas Berger** - Electrochemical Population of Trap States in Nanostructured TiO<sub>2</sub> Films

14.10 – 14.45 **Oliver Diwald** - Charge separation in interface engineered TiO<sub>2</sub> particle systems

14.45 – 15.20 **Gianfranco Pacchioni** - Tuning the properties of oxide surfaces and thin films by cation doping

**15.20 – 15.50 Coffee Break**

**Session 2:** Electronic devices. Discussion Leader –

15.50 – 16.25 **Rainer Waser** - TBA

16.25 – 17.00 **Keith McKenna** - Optimal stoichiometry for nucleation and growth of metallic filaments in HfO<sub>x</sub>

17.00 – 17.35 **Tony Kenyon** – Resistive RAM on Si/SiO<sub>2</sub>

17.35 – 18.10 **Scott Woodley** - Band alignment and defects in reducible oxides

**Discussion**

**19.30 Dinner**

## Friday, May 10

### Session 3: Complex oxides. Discussion Leader –

9.00 – 9.35 **Valeri Afanasiev** - Fermi level pinning and limit of insulating performance of ultra-thin  $\text{Sr}_{0.63}\text{Ti}_{0.37}\text{O}_z$  films

9.35 – 10.10 **Martin Castell** - Atomic and electronic structures of dopants in  $\text{SrTiO}_3$

10.10 – 10.45 **Eugene Kotomin** - *Ab initio* Modelling of Oxygen Transport in  $(\text{Ba,Sr})(\text{Co,Fe})\text{O}_3$  Perovskite Solid Solutions for Solid Oxide Fuel Cells

### 10.45 – 11.10 Coffee Break

### Session 4: Surfaces. Discussion Leader –

11.10 – 11.45 **Adam Foster** - Role of defects in stabilizing the  $\text{MgAl}_2\text{O}_4$  (100) and  $\text{MgAl}_2\text{O}_4$  (100): $\text{Al}_2\text{O}_3$  Surfaces

11.45 – 12.20 **Michael Busch** - Water Oxidation at Transition Metal Oxides

### 12.20 – 13.20 Lunch

### Session 5: Defects. Discussion Leader –

13.20 – 13.55 **Filip Tuomisto** - Positron annihilation spectroscopy of defects and interfaces in oxides

13.55 – 14.30 **Bengt Svensson** - Point defects and impurities in mono-crystalline zinc oxide; some recent advances

14.30 – 15.05 **Tobias Zacherle** - *Ab initio* analysis of the defect structure of ceria

### 15.05 – 15.30 Coffee Break

### Session 6: Interfaces. Discussion Leader –

15.30 – 16.05 **Oreste Madia** - Impact of strain on the passivation efficiency of Ge dangling bond interface defects in condensation grown  $\text{SiO}_2/\text{Si}_{1-x}\text{Ge}_x/\text{SiO}_2/(100)\text{Si}$  structures with nm thin  $\text{Si}_{1-x}\text{Ge}_x$  layers

16.05 – 16.40 **Sanliang Ling** – Charge trapping by  $\text{E}'$  centres at  $\text{Si}/\text{SiO}_2$  interfaces

### 16.40 General Discussion and Conclusion

### *Poster Presentations:*