

**Faraday Discussion 140: Electrocatalysis – Theory and Experiment at the Interface**  
**University of Southampton**  
**7 – 9 July 2007**

**Monday 7 July 2008**

11:00	<b>Registration</b> Foyer Building 67 (Nightingale) Lecture Theatre 1027
12:00	<b>Lunch</b> – Garden Court (Tickets only)
13:15	<b>Welcome and Introductions: Andrea Russell, <i>University of Southampton, UK</i></b>
<b>Session 1</b>	<b>Structure in Electrocatalysis: from single crystals to nanoparticles</b>
	<b>Session Chair: Elena Savinova, <i>Louis Pasteur University, Strasbourg, France</i></b>
13.30 <b>Paper 1</b>	<b>Introductory Lecture</b> Marc Koper* <i>Leiden University, The Netherlands</i>
14.30 <b>Paper 2</b>	<b>The role of anions in surface electrochemistry</b> D V Tripkovic, D Strmcnik, D van der Vliet, V Stamenković and N Marković* <i>Argonne National Laboratory, USA</i>
<b>Paper 6</b>	<b>From ultra high vacuum to the electrochemical interface: x-ray scattering studies of model electrocatalysts</b> Christopher A Lucas*, Michael Cormack, Mark E Gallagher, Alexander Brownrigg, Paul Thompson, Ben Fowler, Yvonne Gründer, Jerome Roy, Vojislav Stamenković and Nenad M Marković <i>University of Liverpool, UK</i>
15.30	<b>Afternoon Tea – Garden Court</b>
16:00 <b>Paper 5</b>	<b>Surface dynamics at well-defined single crystal microfaceted Pt(111) electrodes: in situ optical studies</b> Iosif Fromondi and Daniel Scherson* <i>Case Western Reserve University, USA</i>
<b>Paper 4</b>	<b>Bridging the gap between nanoparticles and single crystal surfaces</b> Payam Kaghazchi, Felice C Simeone, Khaled A Soliman, Ludwig A Kibler and Timo Jacob* <i>Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany</i>
<b>Paper 3</b>	<b>Nanoparticle catalysts with high energy surfaces and enhanced activity synthesized by electrochemical method</b> Na Tian, Zhi-You Zhou, Zhi-Zhong Huang, De-Jun Chen and Shi-Gang Sun* <i>Xiamen University, China</i>
17.30	<b>Close of Session</b>
17.30-19:00	<b>Poster Session and Wine Reception – Garden Court sponsored by</b>  <div style="text-align: center;">  </div> <i>All delegates invited</i>
19:30- 20:00	<b>Additional Check in available at Glen Eyre Halls of Residence</b>
20:00 – 20:45	<b>Dinner at Glen Eyre Complex</b>

Tuesday 8 July 2008

<b>Session 2</b>	<b>Structural effects in electrocatalysis and fuel cells</b>
	<b>Session Chair: Carol Korzeniewski, <i>Texas Tech University, USA</i></b>
09:00 <b>Paper 7</b>	<b>Differential reactivity of Cu(111) and Cu(100) during nitrate reduction in acid electrolyte</b> Sang-Eun Bae and Andrew A Gewirth* <i>University of Illinois, USA</i>
<b>Paper 9</b>	<b>Molecular structure at electrode/electrolyte solution interfaces related to electrocatalysis</b> Kohei Uosaki*, Hidneori Noguchi** and Tsubasa Okada <i>Hokkaido University, Japan</i> <b>Work being presented by **</b>
<b>Paper 12</b>	<b>A comparative in situ electrochemical-NMR investigation of PtRu nanoparticles supported on diverse carbon nonomaterials</b> Fatang Tan, Bingchen Du, Aaron L Danberry, In-Su Park, Yung-Eun Sung and YuYe Tong* <i>Georgetown University, USA</i>
10:30	<b>Morning Coffee – Garden Court</b>
11:00 <b>Paper 8</b>	<b>Spectroelectrochemical flow cell with temperature control for investigation of electrocatalytic systems with surface-enhanced Raman spectroscopy</b> Bin Ren*, Xiao-Bing Lian, Jian-Feng Li, Ping-Ping Fang, Qun-Ping Lai and Zhong-Qun Tian <i>Xiamen University, China</i>
<b>Paper 20</b>	<b>Mesoscopic mass transport effects in electrocatalytic processes</b> Y E Seidel, A Schneider, Z Jusys, B Wickmann, B Kasemo, and R J Behm* <i>Ulm University, Germany</i>
12:00	<b>Close of Session and Lunch/Posters – Garden Court (All invited)</b>
<b>Session 3</b>	<b>Hydrogen reactions and novel electrocatalysts</b>
	<b>Session Chair: Elisabet Ahlberg, <i>Göteborg University, Sweden</i></b>
14:00 <b>Paper 13</b>	<b>On the catalysis of the hydrogen oxidation</b> E Santos, Kay Pötting and Wolfgang Schmickler* <i>Ulm University, Germany</i>
<b>Paper 14</b>	<b>Hydrogen evolution on nano-particulate transition metal sulfides</b> Jacob Bonde, Poul G Moses, Thomas F Jaramillo, Jens K Nørskov and Ib Chorkendorff* <i>Technical University of Denmark, Denmark</i>
<b>Paper 15</b>	<b>Influence of water on elementary reaction steps in electrocatalysis</b> Yoshihiro Gohda, Sebastian Schnur and Axel Gross* <i>Ulm University, Germany</i>
15:30	<b>Afternoon Tea – Garden Court</b>
16:00 <b>Paper 11</b>	<b>Co-adsorption of Cu and Keggin type polytungstates on polycrystalline Pt: interplay of atomic and molecular UPD</b> Galina Tsirlina*, Elena Timofeeva, Nobuko Tanimura, Nataliya Sherstyuk, Marina Borzenko, Seiichiro Nakabayashi and Oleg Petrii <i>MV Lomonosov Moscow State University, Russia</i>

<b>Paper 10</b>	<b>Aqueous-based synthesis of ruthenium-selenium catalyst for oxygen reduction reaction</b> Cyril Delacote, Arman Bonakdarpour, Christina M Johnston, Piotr Zelanay and Andrzej Wieckowski* <i>University of Illinois, USA</i>
<b>Paper 18</b>	<b>Size and composition distribution dynamics of alloy nanoparticle electrocatalysts probed by Anomalous Small Angle X-ray Scattering (ASAXS)</b> Chengfei Yu, Shirlaine Koh, Jennifer Leisch, Michael F Toney and Peter Strasser*, <i>University of Houston, USA</i>
17:30	<b>Close of Session</b>
19:30	<b>Pre-Dinner Drinks – Hartley Brasserie (Tickets only)</b>
20:00	<b>Conference Dinner – Garden Court (Tickets only)</b> Bar extension to midnight

### Wednesday 9 July 2008

<b>Session 4</b>	<b>Biological electrocatalysis and alcohols as fuels</b>
	<b>Session Chair: Anthony Kucernak, <i>Imperial College London, UK</i></b>
09:00 <b>Paper 19</b>	<b>Efficient electrocatalytic oxygen reduction by the ‘blue’ copper oxidase, laccase, directly attached to chemically modified carbons</b> Christopher F Blanford, Carina E Foster, Rachel S Heath and Fraser A Armstrong* <i>University of Oxford</i>
<b>Paper 16</b>	<b>Steady state oxygen reduction reaction and cyclic voltammetry</b> Jan Rossmeisl*, Gustav S Karlberg, Thomas Jaramillo and Jens K Nørskov <i>Technical University of Denmark, Denmark</i>
<b>Paper 17</b>	<b>Intrinsic kinetic equation for oxygen reduction reaction in acidic media: the double Tafel slope and fuel cell applications</b> Jia X Wang*, Francisco A Uribe, Thomas E Springer, Junliang Zhang and Radoslav R Adzic <i>Brookhaven National Laboratory, USA</i>
10:00	<b>Morning Coffee – Garden Court</b>
10.30 <b>Paper 21</b>	<b>A first principles comparison of the mechanism and site requirements for the electrocatalytic oxidation of methanol and formic acid over Pt</b> Matthew Neurock*, Michael Janik and Andrej Wieckowski <i>University of Virginia, USA</i>
<b>Paper 22</b>	<b>Surface structure effects on the electrochemical oxidation of ethanol on platinum single crystal electrodes</b> Flavio Colmati, Germano Tremiliosi-Filho, Ernesto R Gonzalez, Antonio Berna, Enrique Herrero* and Juan M Feliu <i>Universidad de Alicante, Spain</i>
<b>Paper 23</b>	<b>Electro-oxidation of ethanol and acetaldehyde on platinum single-crystal electrodes</b> Stanley C S.Lai* and Marc T M Koper <i>Leiden University, The Netherlands</i>

12:00 <b>Paper 24</b>	<b>Concluding Remarks</b> David Schiffrin* <i>University of Liverpool, UK</i>
12:30	<b>Acknowledgements</b> – Andrea Russell, <i>University of Southampton</i>
12:45	<b>Close of Meeting</b>