

Hot-electron science and microscopic processes in plasmonics and catalysis

Faraday Discussion



18–20 February 2019
London, UK

Monday 18 February

11:30	Registration, Tea and Coffee	
12:00	Lunch	
12:45	Welcome and Introductions Stefan Maier and Anatoly Zayats, <i>Chair of Scientific Committee</i>	
12:55	Outline of Discussion Format Joe Gibson and Kirsten Hall, <i>Royal Society of Chemistry Publishing Editors</i>	
13:00	Introductory Lecture (Session Chair: Stefan Maier) Naomi J. Halas <i>Rice University</i>	
	Session 1: Dynamics of hot electron generation in metallic nanostructures (Session Chair: Anatoly Zayats)	
14:00	Hot carriers generated by plasmons: where are they generated and where do they go from there? Jacob B. Khurgin John Hopkins University, United States	Paper 23007
14:05	Impact of chemical interface damping on surface plasmon dephasing Andrew J. Therrien, Matthew J. Kale, Lin Yuan, Chao Zhang, Naomi J. Halas and Phillip Christopher <i>University of California, Santa Barbara</i>	Paper 23003
14:10	Monitoring plasmonic hot-carrier chemical reactions at the single particle level Sabrina Simoncelli, Evangelina L. Pensa, Thomas Brick, Julian Gargiulo, Alberto Lauri, Javier Cambiasso, Yi Li, Stefan A. Maier and Emiliano Cortés <i>Imperial College London</i>	Paper 23936
14:15	Discussion	
15:30	Afternoon tea	
16:00	Electron-induced molecular dissociation at a surface leads to reactive collisions at selected impact parameters Kelvin Anggara, Lydie Leung, Matthew J. Timm, Zhixin Hu and John C. Polanyi <i>University of Toronto</i>	Paper 23942
16:05	Hot electron effects during reactive scattering of H₂ from Ag(111): assessing the sensitivity to initial conditions, coupling magnitude, and electronic temperature Reinhard J. Maurer, Yaolong Zhang, Hua Guo and Bin Jiang <i>University of Warwick</i>	Paper 23803
16:10	Discussion	
17:00	Lightning presentations (by invitation of the scientific committee)	
17:30	Celebrating the 300th Faraday Discussion	
18:00	Poster Session and Wine Reception	

Tuesday 19 February

	Session 2: Theory of hot electrons (Session Chair: Peter Nordlander)	
09:00	Dynamics of electron-emission currents in plasmonic gaps induced by strong fields Garikoitz Aguirregabiria, Dana-Codruta Marinica, Markus Ludwig, Daniele Brida, Alfred Leitenstorfer, <u>Javier Aizpurua</u> and Andrey G. Borisov <i>Materials Physics Center (CSIC-UPV/EHU), San Sebastián</i>	Paper 23001
09:05	Carrier dynamics and spin–valley–layer effects in bilayer transition metal dichalcogenides Christopher J. Ciccarino, Chitrleema Chakraborty, Dirk R. Englund and <u>Prineha Narang</u> <i>Harvard</i>	Paper 24500
09:10	Direct hot-carrier transfer in plasmonic catalysis <u>Priyank V. Kumar</u> , Tuomas P. Rossi, Mikael Kuisma, Paul Erhart and David J. Norris <i>ETH Zurich</i>	Paper 24264
09:15	Discussion	
10:30	Morning Tea	
11:00	Generation of hot electrons in nanostructures incorporating conventional and unconventional plasmonic materials Tianji Liu, Lucas V. Besteiro, Zhiming Wang and <u>Alexander O. Govorov</u> <i>Ohio University</i>	Paper 23005
11:05	Assistance of metal nanoparticles in photocatalysis – nothing more than a classical heat source <u>Yonatan Sivan</u> , Ieng Wai Un and Yonatan Dubi <i>Ben-Gurion University</i>	Paper 24006
11:10	Out-of-equilibrium electron dynamics of silver driven by ultrafast electromagnetic fields – a novel hydrodynamical approach <u>Andrea Marini</u> , Alessandro Ciattoni and Claudio Conti <i>University of L'Aquila</i>	Paper 24388
11:15	Discussion	
12:30	Lunch	
	Session 3: New materials for hot electron generation (Session Chair: Jennifer Dionne)	
13:30	Gap-plasmon enhanced water splitting with ultrathin hematite films: the role of plasmonic-based light trapping and hot electrons Aveek Dutta, Alberto Naldoni, Francesco Malara, Alexander Govorov, Vladimir M. Shalaev and <u>Alexandra Boltasseva</u> <i>Purdue University</i>	Paper 23002
13:35	Tuning the SERS activity and plasmon-driven reduction of <i>p</i>-nitrothiophenol on a Ag@MoS₂ film Peng Miao, Yan Ma, Mengtao Sun, Jing Li and <u>Ping Xu</u> <i>Harbin Institute of Technology</i>	Paper 23676
13:40	The role of a plasmonic substrate on the enhancement and spatial resolution of tip-enhanced Raman scattering <u>Mahfujur Rahaman</u> , Alexander G. Milekhin, Ashutosh Mukherjee, Ekaterina E. Rodyakina, Alexander V. Latyshev, Volodymyr M. Dzhagan and Dietrich R. T. Zahn <i>Chemnitz University of Technology</i>	Paper 24057
13:50	Discussion	
15:00	Afternoon Tea	
15:30	Hot electron-driven photocatalysis and transient absorption spectroscopy in plasmon resonant grating structures Yi Wang, Lang Shen, Yu Wang, Bingya Hou, George N. Gibson,	Paper 23004

	Nirakar Poudel, Jihan Chen, Haotian Shi, Ernest Guignon, Nathaniel C. Cady, William D. Page, Arturo Pilar, Jahan Dawlaty and <u>Stephen B. Cronin</u> <i>University of Southern California</i>	
15:35	Enhancing hot electron generation and injection in the near infrared via rational design and controlled synthesis of TiO₂-gold nanostructures Supriya Atta, Fuat E. Celik and <u>Laura Fabris</u> <i>Rutgers University</i>	Paper 24026
15:40	Enhanced hot electron generation by inverse metal–oxide interfaces on catalytic nanodiode Hyosun Lee, Sinmyung Yoon, Jinwoung Jo, Beomjoon Jeon, Taeghwan Hyeon, Kwangjin An and <u>Jeong Young Park</u> <i>KAIST/IBS</i>	Paper 24292
15:45	Direct optical excitation of dark plasmons for hot electron generation Niclas S. Mueller, Bruno G. M. Vieira, Dominik Höing, Florian Schulz, Eduardo B. Barros, Holger Lange and <u>Stephanie Reich</u> <i>Freie Universität Berlin</i>	Paper 24278
15:50	Discussion	
17:30	Close of sessions	
18:30	Pre-Dinner Drinks	
19:00	Conference Dinner	

Wednesday 20 February

	Session 4: Applications in catalysis, photochemistry, and photodetection (Session Chair: Hongxing Xu)	
09:00	Optimizing hot carrier effects in Pt-decorated plasmonic heterostructures <u>Jorge U. Salmón-Gamboa</u> , Mayela Romero-Gómez, Diane J. Roth, Matthew J. Barber, Pan Wang, Simon M. Fairclough, Mazhar E. Nasir, Alexey V. Krasavin, Wayne Dickson and Anatoly V. Zayats <i>King's College London</i>	Paper 24062
09:05	Photocatalytic ammonia production enhanced by a plasmonic near field and hot electrons originating from aluminum nanostructures <u>Madasamy Thangamuthu</u> , Christian Santschi and Olivier J. F. Martin <i>EPFL, Switzerland</i>	Paper 24461
09:10	Plasmonic photocatalysis applied to solar fuels Steven Bardey, Audrey Bonduelle-Skrzypczak, Antoine Fécant, Zhenpeng Cui, Christophe Colbeau-Justin, <u>Valérie Caps</u> and Valérie Keller <i>CNRS / University of Strasbourg (ICPEES)</i>	Paper 24312
09:15	Discussion	
10:30	Morning Tea	
11:00	Unearthing the factors governing site specific rates of electronic excitations in multicomponent plasmonic systems and catalysts Steven Chavez, Vishal Govind Rao and <u>Suljo Linic</u> <i>University of Michigan</i>	Paper 23006
11:05	Plasmon-induced optical control over dithionite-mediated chemical redox reactions <u>Junyang Huang</u> , Bart de Nijs, Sean Cormier, Kamil Sokolowski, David-Benjamin Gryns, Charlie A. Readman, Steven J. Barrow, Oren A. Scherman and Jeremy J. Baumberg <i>University of Cambridge</i>	Paper 24073
11:10	The impact of optically rectified fields on plasmonic electrocatalysis Darby A. Nelson and Zachary D. Schultz	Paper 23991

	<u>Ohio State University</u>	
11:15	Discussion	
12:30	Concluding Remarks Lecture (Session Chair: Sebastian Schlücker) Jeremy Baumberg <u>University of Cambridge</u>	
13:10	Acknowledgements	
13:15	Close of meeting	

Presenting authors are indicated in the programme by an underline. The affiliation is for the presenting author. If the presenting author of your paper has changed since abstract selection please email events@rsc.org. Please note that this is a draft programme and timings may change.