

**Nobel Prize Laureate Lecture
Wolf Prize Foundation Laureate Lecture
International Symposium “Frontiers in Photon Science”**

13-14 October 2010

organised by Klaus Müller-Dethlefs
The Photon Science Institute, University of Manchester

Wednesday 13th October, University Place Lecture Theatre B

- 13:00 Poster session and exhibition (in Foyer)
14:00 Welcome by the University of Manchester and the
Photon Science Institute
Rod Coombs, Deputy President and Deputy Vice-Chancellor
Richard Winpenny, Director of The Photon Science Institute

Session Chair: Klaus Müller-Dethlefs
The Photon Science Institute and School of Chemistry

14:15 **Wolfgang Ketterle**, Nobel Prize Winner in Physics
Massachusetts Institute of Technology
15:30 **Richard N. Zare**, Wolf Foundation Prize Winner in Chemistry
Stanford University

16:45 ***Open Discussion***
17:00 Poster session

Thursday 14th October, Entrance Hall, Sackville Street Building

- 09:00 Refreshments
Session Chair: Christopher Whitehead (University of Manchester)
09:15 **Dan Neumark** (University of California, Berkeley)
10:00 **Tim Softley** (Oxford University)
10:30 **Gerard Meijer** (Fritz Haber Institut, Berlin)
11:00 **Mikko Riese** (University of Manchester)
11:30 Break and Refreshments
Session Chair: Katharine Reid (University of Nottingham)
12:00 **Masaaki Fujii** (Tokyo Institute of Technology)
12:45 **Caroline Dessent** (University of York)
13:15 **Bernd Brutschy** (Universität Frankfurt)
13:45 **Dave Binks** (University of Manchester)
14:15 **Karl Kleinermanns** (Universität Düsseldorf)
14:45 Concluding remarks
15:00 Symposium Banquet (by special invitation)

All those wishing to attend this free symposium must confirm their attendance by email at psipa@manchester.ac.uk – please specify date(s)

International Symposium “Frontiers in Photon Science”

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Talk Titles

Wednesday 13th October, University Place Lecture Theatre B

Wolfgang Ketterle, **Nobel Prize Winner in Physics**, Massachusetts Institute of Technology

“Superfluid gases near absolute zero temperature”

Superfluidity has been studied in a gas of bosons when it undergoes Bose-Einstein condensation, and for fermions which have to form pairs before they can become superfluid. These studies illustrate a new approach to condensed-matter physics where many-body phenomena are realized in dilute atomic gases.

Richard N Zare, **Wolf Foundation Prize in Chemistry**, Stanford University

“Measuring isotope ratios”

The possibility that photonics might replace specifically built mass spectrometers for precision isotope ratio measurements will be explored. In addition, recent work will be described which uses cavity ring-down spectroscopy to determine D/H, $^{13}\text{C}/^{12}\text{C}$ and $^{18}\text{O}/^{16}\text{O}$ isotope ratios in various samples of interest.

Thursday 14th October, Entrance Hall, Sackville Street Building

Dan Neumark, University of California, Berkeley

“Femtosecond and attosecond dynamics in molecules and clusters”

Tim Softley, University of Oxford

“Cool chemistry with Coulomb crystals”

Gerard Meijer, Fritz Haber Institut, Berlin

“Taming molecular beams”

Mikko Riese, University of Manchester

“A novel ultracold molecular electronic degenerate Rydberg plasma”

Masaaki Fujii, Tokyo Institute of Technology

“Ionization induced dynamics of PhOH...Ar clusters”

Caroline Dessent, University of York

“From anions to anionic mixed charge clusters: potential energy surfaces and spectroscopic implications”

Bernd Brutschy, Universität Frankfurt

“Biology studied in micro droplets: a new version of laser mass spectrometry”

Dave Binks, University of Manchester

“Two for the price of one – multiple exciton generation in nanocrystal quantum dots”

Karl Kleinermanns, Universität Düsseldorf

“Energy conversion and hydrogen generation by quantum dot solar cells”