



## 2<sup>nd</sup> German-Japanese Joint Seminar New Prospects of Molecular Imaging Technology for Interdisciplinary Research

August 31 - September 2, 2009

The University of Regensburg  
Regensburg, Germany

Seminar based on the joint support of  
Regensburg University and DLR (German Aerospace Center)  
in cooperation with  
Global COE Program, Tohoku University



### Venue:

Universität Regensburg, Institut für Analytische Chemie  
Chemo- und Biosensorik, 93040 Regensburg, Germany

### Program:

**August 30<sup>th</sup>** (Sunday) Get-together

**August 31<sup>th</sup>** (Monday) Scientific program: lectures

**September 1<sup>st</sup>** (Tuesday) Scientific program: lectures (including posters)

**September 2<sup>nd</sup>** (Wednesday) Scientific program: lectures  
Open Discussion, Lab Tour

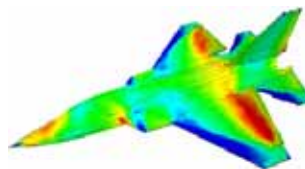
### Organizers:

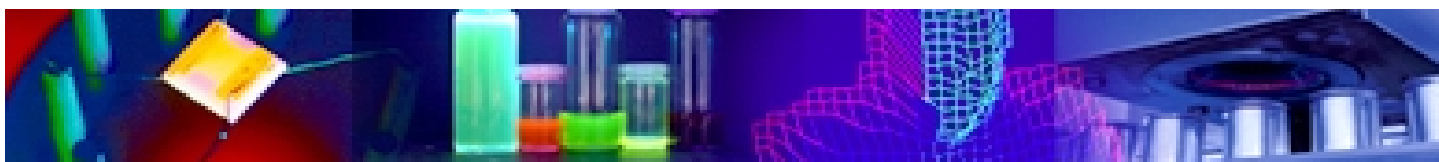
Prof. Otto S. Wolfbeis ([otto.wolfbeis@chemie.uni-r.de](mailto:otto.wolfbeis@chemie.uni-r.de)), Universität Regensburg

Dr. Michael Schäferling ([michael.schaeferling@chemie.uni-regensburg.de](mailto:michael.schaeferling@chemie.uni-regensburg.de)),  
Universität Regensburg

Dr. Christian Klein ([christian.klein@dlr.de](mailto:christian.klein@dlr.de)), DLR (German Aerospace Center)

Prof. Keisuke Asai, Tohoku University (Representative on Japanese side)





## 2<sup>nd</sup> Japanese-German Joint Seminar:

# New Prospects of Molecular Imaging Technology for Interdisciplinary Research

### Topics:

- Fluorescence Imaging and Microscopy
- Luminescent Sensors: Probes and Materials
- Oxygen, pH and Ion Sensors for Life Sciences
- Pressure and Temperature Sensitive Paints for Fluid Mechanics

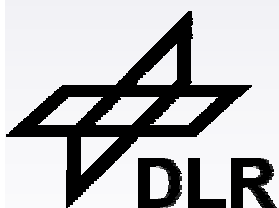
### Lectures:

K. Asai (Tohoku University)  
Y. Amao (Oita University)  
Y. Matsuda (Nagoya University)  
M. Mitsuishi (Tohoku University)  
K. Nakakita (JAXA)  
M. Obata (Yamanashi University)  
K. Oguri (JAMSTEC)

J.P. Fischer (MPI for Marine Microbiology)  
G. Holst (PCO AG Kelheim)  
H.-H. Gorris (University of Regensburg)  
C. Klein (DLR Göttingen)  
I. Klimant (Graz University of Technology)  
G. Mohr (University of Jena)  
J. Quest (ETW GmbH)  
M. Schäferling (University of Regensburg)  
O.S. Wolfbeis (University of Regensburg)

Programme details: <http://www-analytik.chemie.uni-regensburg.de/en/news.htm>

**31. August – 02. September 2009**  
**University of Regensburg**  
**Faculty of Chemistry & Pharmacy**  
**Lecture Hall H 46**



Organization: Institute of Analytical Chemistry  
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## 2<sup>nd</sup> Japanese German Joint Seminar

# Molecular Imaging Technology for Interdisciplinary Research

August 31 - September 02, 2009  
University of Regensburg, Germany

Monday, 31 August, 2009 (Faculty of Chemistry and Pharmacy, Lecture Hall H46)	
13:30 – 14:00	<b>Opening Address</b> Prof. Otto S. Wolfbeis (University of Regensburg) Prof. Hans Meixner (Speaker of Sensor Cluster)
<b>PSP Applications</b>	
14:00 – 15:00	<b>Plenary Lecture</b> (supported by Hans Vielberth Stiftung University of Regensburg) <i>Aerodynamic Applications of Molecular Imaging and Sensing</i> Prof. Keisuke Asai (Tokoku University, Japan)
15:00 – 15:30	<i>In-flight pressure measurement using PSP technique</i> Dr. Christian Klein (DLR Göttingen, Germany)
<b>Coffee Break</b>	
16:00 – 16:30	<i>Development of pressure sensitive molecular film applicable to pressure measurement of high Knudsen number flows</i> Prof. Yu Matsuda (Nagoya University, Japan)
16:30 - 17:00	<i>Research and application of pressure and temperature sensitive coatings at the cryogenic wind tunnel ETW</i> Jürgen Quest (European Transonic Windtunnel GmbH, Germany)
17:00 – 17:30	<i>Development of unsteady PSP techniques at JAXA</i> Kazuyuki Nakakita (JAXA, Japan)

Tuesday, 01 September, 2009 (Faculty of Chemistry and Pharmacy, Lecture Hall H46)

**Luminescent Probes and Materials for Sensors**

9:00 - 10:00	<b>Plenary Lecture:</b> <i>Novel sensing materials for luminescence imaging applications</i> <b>Prof. Ingo Klimant (Graz University of Technology, Austria)</b>
10:00 - 10:30	<i>New platinum coordination complexes for pressure sensitive paints</i> <b>Prof. Yutaka Amao (Oita University, Japan)</b>
10:30 - 11:00	<i>Red and green emitting Ir(III) complexes applicable to pressure and temperature sensing and imaging</i> <b>PD Dr. Michael Schäferling (University of Regensburg, Germany)</b>
	<b>Coffee Break</b>
<b>Global COE Program Session</b>	
11:30 - 12:00	<i>Synthesis of functional polymers for PSP/TSP technology</i> <b>Prof. Makoto Obata (Yamanashi University, Japan)</b>
12:00 - 12:30	<i>Plasmon enhanced luminescence using polymer nanosheet assembly</i> <b>Prof. Masaya Mitsuishi (Tohoku University, Japan)</b>
	<b>Lunch Break</b>
14:00 - 14:30	<i>Fluorescent nanosensors for monitoring gaseous and ionic analytes</i> <b>PD Dr. Gerhard Mohr (Friedrich Schiller University of Jena, Germany)</b>
14:30- 16:30	<b>Poster Session</b>
16:30-17:00	<i>Multiple optical sensors: Materials and methods</i> <b>Prof. Otto S. Wolfbeis (University of Regensburg, Germany)</b>
19:00	<b>Dinner (sponsored by DLR Göttingen)</b>

Wednesday, 02 September, 2009 (Faculty of Chemistry and Pharmacy, Lecture Hall H46)

## Optical Sensors and Imaging

9:00 - 9:45	<b>Plenary Lecture:</b> <i>Advances in camera technology for scientific imaging - FLIM and sCMOS</i> <b>Dr. Gerhard Holst (PCO AG, Germany)</b>
9:45 - 10:15	<i>Spatial resolution of planar optodes: Theoretical limits and a new high resolution planar optode setup</i> <b>Jan P. Fischer (MPI for Marine Microbiology, Germany)</b>
	<b>Coffe Break</b>
10:45 - 11:15	<i>Oxygen dynamics at Arabian Sea sediments: development of an ultra high sensitive planar oxygen optode and preliminary results of the deployments.</i> <b>Dr. Kazumasa Oguri (JAMSTEC, Japan)</b>
11:15 - 11:45	<i>Observing single enzyme molecules in optical fiber microarrays</i> <b>Dr. Hans-Heiner Gorris (University of Regensburg, Germany)</b>
11:45 - 12:00	<b>Concluding Remarks (Dr. Christian Klein, DLR Göttingen, Germany)</b>
	<b>Lunch Break</b>
13:00	<b>Open Discussion / Lab Tour</b>

### Organizers:

PD Dr. Michael Schäferling ([michael.schaeferling@chemie.uni-regensburg.de](mailto:michael.schaeferling@chemie.uni-regensburg.de)), University of Regensburg

Prof. Otto S. Wolfbeis ([otto.wolfbeis@chemie.uni-r.de](mailto:otto.wolfbeis@chemie.uni-r.de)), University of Regensburg

Dr. Christian Klein ([christian.klein@dlr.de](mailto:christian.klein@dlr.de)), DLR (German Aerospace Center)

Prof. Keisuke Asai, Tohoku University (Representative on Japanese side)

**Poster Session Japanese-German Joint Seminar  
Tuesday, 01 September 2009, 14:30 - 16:30**

<b>P 01</b>	Prof. Tokuji Miyashita	Tohoku University	<i>"Polymer nanosheet assemblies for molecular imaging"</i>
<b>P 02</b>	Dr. Vlado Ondrus	University of Hohenheim	<i>"Development of polymer based unsteady PSP-systems"</i>
<b>P 03</b>	Prof. Yoshitaka Sakamura	Toyama Prefectural University	<i>"Development of an electropolymerized pressure-sensitive coating"</i>
<b>P 04</b>	Prof. Hideo Mori	Kyusyu University	<i>"Application of PSP to low-speed flow fields for analyses of turbomachinery flows"</i>
<b>P 05</b>	Lorenz Fischer	University of Regensburg	<i>"Oxygen and temperature sensitivity of red and green emitting iridium(III) probes"</i>
<b>P 06</b>	Prof. Toshiaki Kamachi	Nagoya University	<i>"Porphyrin based thiol sensor"</i>
<b>P 07</b>	Prof. Hiroki Nagai	Tohoku University	<i>"Aerodynamic heating estimation in hypersonic flow using temperature-sensitive paint and CFD calculation"</i>
<b>P 08</b>	Dr. Hiroki Yamaguchi	Nagoya University	<i>"Discussion on mechanism of pressure-sensitive paints"</i>
<b>P 09</b>	Robert Maier	University of Regensburg	<i>"Fluorescent sensors for pH and pO<sub>2</sub> in dermatological purpose"</i>
<b>P 10</b>	Prof. Ingo Klimant	Graz University of Technology	<i>"Light harvesting - A tool to obtain ultrabright and fast responding sensors"</i>
<b>P 11</b>	Dr. Sergey Borisov	Graz University of Technology	<i>"NIR oxygen sensing with novel fluorinated platinum(II)tetrabenzoporphyrins"</i>
<b>P 12</b>	Dr. Sergey Borisov	Graz University of Technology	<i>"Novel europium(III) and gadolinium(III) chelates for optical sensing of temperature and oxygen"</i>
<b>P 13</b>	Dr. Hirotaka Sakaue	JAXA	<i>"Recent progress of molecular imaging at Fluid Dynamics Group JAXA"</i>
<b>P 14</b>	Daisuke Yorita	Tohoku University	<i>"A new phase-lock method for unsteady PSP measurement using signal processing"</i>
<b>P 15</b>	Martin Bitter	Universität der Bundeswehr, Munich	<i>"Investigations on an impinging supersonic jet using PSP and <math>\mu</math>PSP"</i>
<b>P 16</b>	Dr. Mitsuru Kurita	JAXA / ONERA	<i>"Applications of pressure-sensitive paint system to industrial wind tunnel"</i>
<b>P 17</b>	Dr. Gerhard Mohr	University of Jena	<i>"On the use of naphthalimide dye derivatives for sensor applications"</i>
<b>P 18</b>	Dr. Matthias Stich	University of Regensburg	<i>"Luminescent triple sensor system for simultaneous determination of pO<sub>2</sub>, T, and pH"</i>
<b>P 19</b>	Dr. Matthias Stich	University of Regensburg	<i>"Time-domain signal separation of dual luminescent sensors"</i>