**Lithography simulation workshop**

**Content**

The workshop will provide an excellent opportunity to discuss:

- the results of the latest research activities and future developments in lithography and lithography simulation
- strong and weak points of present simulation models and necessary model extensions
- various topics from different points of view, as the participants have different backgrounds (modeling, tool & material suppliers, and semiconductor manufacturing)

**Focal topics of the 2006 workshop are:**

- **Alternative lithographies**
  Simulation of lithographic processes besides from standard projection printing (proximity and near field lithography, nanoimprint, direct e-beam or laser writing, ...)

- **Optimization and its application**
  Optimization methods and their applications in lithography simulation

- **Extensions of electromagnetic field simulation (EMF)**
  Extensions of 3D electromagnetic field simulations of light diffraction from lithographic masks (material properties, impact of evanescent waves, surface plasmons, ...)

In order to have a fruitful exchange of ideas, the number of participants is limited to 35.

**Workshop accommodations**

The workshop takes place in Hersbruck at the Conference Hotel Lindenhof, which is located in a typical Franconian landscape.

This workshop is organized by Fraunhofer IISB

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**Program**

**Friday, September 29, 2006**

<table>
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<th>Time</th>
<th>Event</th>
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| 7:00 pm | Welcome and introduction  
A. Erdmann (IISB) |
| 7:45 pm | Breaking the diffraction limit using plasmonics  
O. Martin (EPFL, Lausanne) |
| 8:30 pm | Welcome reception |

**Saturday, September 30, 2006**

<table>
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<th>Time</th>
<th>Event</th>
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| 9:00 am | Theory and practice of polarized optical lithography: Implications for image simulation  
M. Totzek, D. Krämer, O. Dittmann, A. Göhnermeier (Carl Zeiss) |
| 9:30 am | Fast optical and EUV mask near field simulation using the waveguide method  
P. Evanschitzky (IISB) |
| 10:00 am | Coffee break |

**Sunday, October 1, 2006**

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<th>Time</th>
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| 9:00 am | Numerical simulations of electrostatic discharge effects on photomasks  
S. Boschert (Siemens) |
| 9:30 am | Writing and exposure optimization in maskless direct e-beam lithography  
P. Hudek (FH Vorarlberg) |
| 10:00 am | Certain simulation and predictive and analytical computational methods used in DUV-laser direct-writing of semiconductor photomasks  
H. Fosshaug, M. Ekberg, P. Askebjer, L. Ivansen, J. Hellgren (Micronic Laser Systems) |
| 10:30 am | Coffee break |

**2:30 pm** Coffee break

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<th>Time</th>
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<tr>
<td>2:30 pm</td>
<td>Coffee break</td>
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| 3:00 pm | Simulation and optimization of optical nanostructures  
Ch. Hafner (ETH Zurich) |
| 3:30 pm | Inverse lithographic imaging of two dimensional gratings  
R. Köhle, B. Küchler, C. Nölscher (Qimonda) |
| 4:00 pm | ARC and swing optimization for high-NA photolithography  
J. Bauer, U. Haak (IHP Frankfurt) |
| 4:30 pm | Discussion on optimization |
| 5:00 pm | Special event and dinner |

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| 9:00 am | Mask proximity printing  
B. Meliorisz (IISB) |
| 11:30 am | Wafer-scale simulation of nanoimprint  
V. V. Sirotkin, A. A. Svintsov, S. I. Zaitsev (IMT RAS) |
| 12:00 pm | Lunch |

**1:00 pm** Discussion and summary

**2:00 pm** Departure
Fax registration

to         
Fraunhofer Institute of Integrated Systems and Device Technology
fax +49 (0) 9131 / 761- 212

☐ I will participate
☐ I will arrive by train in Hersbruck at __________

Deadline for registration   September 8, 2006
Participation fee   475,- €
The fee covers board, lodging and the evening program. You will receive a confirmation of registration. We will invoice you for the fee.

Cancellation   In case of cancellations after the expiration of the deadline you will be charged 75% of the fee. Standing in for a registered participant is possible.

Sender

Title, First-Name, Name

Company / Institution

Street

City

Phone, Fax

E-mail

Date, Signature

Use one form per person please.

Organizational information

Address of the institute   Fraunhofer Institute of Integrated Systems and Device Technology
Schottkystrasse 10
91058 Erlangen, Germany

Organization of the workshop   Andreas Erdmann
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lithography@iisb.fraunhofer.de

Contact   Bernd Tollkühn
phone +49 (0) 9131 / 761-216
fax +49 (0) 9131 / 761-212
lithography@iisb.fraunhofer.de

Hotel   Hotel Lindenhof
Ringhotel Hersbruck
Hubmersberg 2
91224 Pommelsbrunn

Directions – arrival by car
☐ follow highway A9 (Munich – Nuremberg – Berlin), take exit Hersbruck/Sulzbach-Rosenberg,
☐ pass Hersbruck, follow the B14 to exit Neuhaus-Hohenstadt
☐ after 3 km take the second road on the right

Please contact us if you arrive by air or train. We will send you further information.

September 29 – October 1, 2006
in Hersbruck, Germany