



**SIGGRAPH2005**



SIGGRAPH2005

## Course 10

### Realistic Materials in Computer Graphics



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#### Speakers

- Hendrik P.A. Lensch, Stanford University
- Michael Goesele, MPI Informatik (now at UW)
- Yung-Yu Chuang, National Taiwan University
- Tim Hawkins, University of Southern California/ICT
- Steve Marschner, Cornell University
- Wojciech Matusik, MERL
- Gero Müller, Universität Bonn

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#### Motivation

- Technology for photorealistic rendering of complex scenes is available
- Problem: How to generate complex scene models?
  - use CAD data
  - employ (lots of) artists
  - physical simulations
  - mathematical models (e.g., fractal geometry)



image courtesy of Ingo Wald

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#### Motivation

- Problem (2): How to generate a detailed and accurate model of a *real world* object?
- small imperfections
  - characteristic of individual specimen
  - important for photorealistic rendering, preservation, ...
- some objects are very difficult to model



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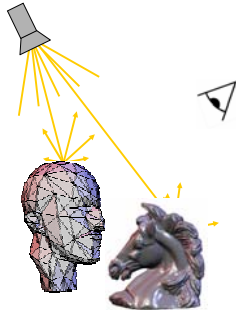
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#### Material/Scene Acquisition

- ⇒ acquisition of the object's properties using a suitable process

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## Requirements for a Scene Description



- Goal: photorealistic rendering
- object geometry
  - emission characteristics of light sources
  - reflection properties of objects

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## Goals of this Course



- Overview of current techniques for measuring reflection properties of materials and objects
- Acquisition techniques are particularly suited for specific classes of materials
  - opaque surfaces, subsurface scattering, fibers, complete objects

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## Schedule



- 8:30 Welcome and Speaker Introduction
- 8:45 Introduction (H. Lensch)
  - Material Properties
  - Classification
- 9:30 Acquisition Basics (M. Goesele)
  - Cameras / HDR
  - Light Sources
- 10:15 Break

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## Schedule



- 10:30 Homogeneous Isotropic BRDFs (W. Matusik)
- 11:15 Heterogeneous Isotropic BRDFs (H. Lensch)
- 11:45 Translucent Materials (M. Goesele)
- 12:15 Lunch

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## Schedule



- 1:45 Transparent/Specular Materials (Y.-Y. Chuang)
- 2:30 Fibers (S. Marschner)
- 3:30 Break
- 3:45 BTFs (G. Müller)
- 4:30 Reflectance Fields (T. Hawkins)
- 5:15 Conclusion, Questions & Answers (all)

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## Course Web Page



- please visit  
<http://www.mpi-inf.mpg.de/resources/siggraph05-course-realistic-materials>



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## Course Evaluation



- please visit

[http://www.siggraph.org/courses\\_evaluation](http://www.siggraph.org/courses_evaluation)

A screenshot of a web-based course evaluation form. The form is titled "10. Realistic Materials in Computer Graphics" and includes a sub-header "SIGGRAPH 2005 Courses - online evaluation form". It contains several numbered questions (1-10) with corresponding input fields for responses. The questions are:  
1. The quality of the course material in relation to a SIGGRAPH course.  
2. The presentation and/or graphics in a good sense of the course content.  
3. As a group, the presentation was well prepared.  
4. As a group, the content was well presented.  
5. As a group, the presentation was of the highest quality.  
6. As a group, the presentation was of the highest quality.  
7. I would recommend this course to other SIGGRAPH attendees.  
8. This course has in fact exceeded my expectations.  
9. Please provide an overall rating for the course.  
10. Please add any additional information in the text box below.  
The form includes a "Submit" button at the bottom.

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