

ASPE 2017 Spring Topical Meeting on Precision Engineering and Optics: What are the Limits of Precision, and How to Characterize Them?

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24-25 April 2017

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Meeting Program

Monday, April 24, 2017

7:30 AM

Registration Check-In (Just Outside of Quail Room)

7:30 AM – 8:30 AM

Continental Breakfast (Quail Room)

8:30 AM – 11:30 AM

Welcome Remarks & Session I

Technology (Quail Room)

1. Welcome and Overview of Precision Engineering and Optics

Robert E. Parks, Optical Perspectives Group, LLC 1

2. Manufacturing of Precision Optics on Non-Precision Machine Tools

Medicus, K. M.; Lynch, T.; Hyman, M.; Ferralli, I. (Optimax Systems Inc.) 4

3. Thin Optical Window Measurement with a Spectrally Controlled Interferometer

Salsbury, C.; Olszak, A. (Apre Instruments) 9

4. Improvement of the Angular Precision of an Optical Metrology Platform by Disturbance Compensation

Riel, T.; Galffy, A.; Sinn, A.; Schitter, G. (TU-Wien) 15

5. Scalability in Contact Lens Manufacturing to Improve the Refractive Performance and User Comfort

Ellis, J. D.; Brooks, D. R.; Butler, S.; Zheleznyak, L. A.; Gandara-Montano, G. A.; Wozniak, K.; Knox, W. H. (University of Rochester) 21

6. The History and Future of the Stedman Diagram

Blum, A.; Evans, C. J. (University of North Carolina-Charlotte) 26

11:30 AM – 1:00 PM

Group Lunch (Javelina Room)

1:00 PM – 4:00 PM

Session 2

Hardware (Quail Room)

1. MEMS Deformable Mirrors for Adaptive Optics

Bifano, T. G. (Boston University) 32

2. 4DoF Active Optical Alignment Tool

Haase T.; Guddei, B.; Diez, P. (Physik Instrumente (PI) GmbH & Co. KG) 37

3. Tip-Tilt Vibration Compensation: A System Analysis

Sinn, A.; Riel, T.; Deisl, F.; Schitter, G. (TU-Wien) 42

4. Extreme Stability of a V-shaped Cavity Optical Feedback Laser Source Jobert, N. (Synchrotron SOLEIL); Casado, M.; Landais, A. (Laboratoire des Sciences du Climat et de l'Environnement); Kassi, S.; Stoltmann, T. (Université Grenoble Alpes / CNRS)	48
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4:30 PM

Bus leaves for University of Arizona (Meet in Lobby of Hotel)

5:00 PM

Arrive at University of Arizona. Proceed to Auditorium to view film
on Mirror Casting. Mirror Lab Tour will begin.

6:30 PM

Cocktails and Dinner at the University Stadium Club

8:30 PM – 9:00 PM

Bus leaves to return to Westward Look

Tuesday, April 25, 2017

7:30 AM

Registration Check-In (Just Outside of Quail Room)

7:30 AM – 8:30 AM

Continental Breakfast (Quail Room)

8:30 AM – 11:30 AM

Session 3

Limits of Precision (Quail Room)

**1. Angular Measurement to 0.1 Arc Seconds: Gaithersburg Latitude
Observatory circa 1900**

Rhorer, R. L. (Rhorer Precision Engineering LLC)	55
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2. Stuck in a Moment: A View from the MIRE

Egan, P.; Stone Jr., J. A.; Ricker, J.; Hendricks, J. (National Institute of Standards & Technology)	66
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3. Limits to Resolution in Optical Dimensional Metrology

de Groot, P. J.; Deck, L. L.; Badami, V. G. (Zygo Corporation)	72
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4. Fizeau Interferometers: The Best Nulling Autocollimators Money can Buy?

Evans, C. J. (University of North Carolina-Charlotte); Ruijl, T. A. M. (MI-Partners); Holmes, M. L.; Deck, L. L.; Soobitsky, J. A. (Zygo Corporation).	77
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5. Characterization of Advanced LIGO Core Optics

Billingsley, G.; Yamamoto, H.; Zhang, L. (California Institute of Technology).	78
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11:30 AM – 1:00 PM

Group Lunch (Javelina Room)

1:00 PM – 3:00 PM

Session 4

Spatial Scale of Precision (Quail Room)

1. High-Precision Lateral Distortion Correction in Coherence Scanning Interferometry using an Arbitrary Surface

Su, R.; Leach, R. K. (University of Nottingham) Ekberg, P. (KTH Royal Institute of Technology) 84

2. Characterization and Optimization of Ultra-Precision Machine Tools and Processes by Time Resolved PSD Signature of Micro/Nano Structured Optical Surfaces

Uhlmann, E.; Kühne, S.; Jagodzinski, M.; Malcher, M. (Technische Universität Berlin) 90

3. Surface Slope Error Distribution on Precision Optical Surfaces

Girard, L.; Kincade, J.; Marchetti, L. (ZYGO Extreme Precision Optics) 96

4. Revisiting PSD Analysis Considerations

Creath, K. 100

5. Computer Generated Holograms as 3D Calibration Artifacts

Zhou, C. (Arizona Optical Metrology); Parks, R. E. (Optical Perspectives Group, LLC). 105

3:30 PM – 5:00 PM

Discussion Session (Quail Room)

END CONFERENCE