

# Technical and Poster Sessions

## Welcome Remarks & Session 1

### Precision Engineering Potpourri

Tuesday, October 31, 2017, 8:00 AM - 10:00 AM

Session Chairs: Robert D. Grejda (Corning Tropol Corporation) and Brian P. O'Connor (Aerotech, Inc.)

- 1. Diamond Tool Wear/Built-up Edge Machining Ferrous Materials**  
Dow, T. A.; Garrard, K. P. (North Carolina State University);  
Suit, B. M. (Lockheed Martin) . . . . . 15
- 2. Optical Form and Relational Metrology of Aspheric Micro Optics**  
Colonna de Lega, X.; Dresel, T.; Liesener, J.; Fay, M. F.; Gilfoy, N.; Dellonna, K.;  
de Groot, P. J. (Zygo Corporation). . . . . 20
- 3. Optimal Three-Point Mounts for Square and Rectangular Plates**  
Verdirame, J. M.; Nayfeh, S. A. (Physical Precision, LLC) . . . . . 24
- 4. The Problem of 'Weak' Equivalence in Measurement Comparisons:  
X-ray CT Metrology Case**  
Villarraga-Gómez, H. (Nikon Metrology, Inc.); Smith, S. T.  
(University of North Carolina-Charlotte). . . . . 30
- 5. Additive Manufacturing of Reflective Optical Components**  
Jared, B. H.; Chavez, T.; Choi, J.; Cook, A. W.; Dianotnio, C. B.; Reinholtz, W.;  
Saavedra, M. P.; Saiz, D. J.; Winrow, E. G. (Sandia National Laboratories) . . . . . 36
- 6. Contactless Shape Manipulation of Thin Substrates Using  
Air Bearing Table**  
Spaan-Burke, T. M.; van Dam, T.; Overschie, P. M.; Spaan, H. A. M.  
(IBS Precision Engineering). . . . . 40

## Session 2

### Controls & Mechatronics

Tuesday, October 31, 2017, 10:30 AM - 12:00 PM

Session Chairs: Dannis M. Brouwer (University of Twente) and Stephen J. Ludwick (Aerotech, Inc.)

- 1. Trends in Control Techniques for Precision Mechatronic Systems**  
Brouwer, D. M. (University of Twente); Ludwick, S. J. (Aerotech, Inc.);  
Okwudire, C. E. (University of Michigan); Peijnenburg, A. T.  
(VDL Enabling Technologies Group) . . . . . 46
- 2. Detailed Experimental Evaluation of the Compliant Joint Method for  
Feedforward Compensation of Pre-Motion Friction**  
Dong, X.; Okwudire, C. E. (University of Michigan). . . . . 52
- 3. Multi-Axis Trajectory Generation with Optimal Frequency Spectrum for  
Vibration Avoidance**  
Dumanli, A. A.; Sencer, B. (Oregon State University) . . . . . 57