

**AGENDA & PROCEEDINGS OF THE  
FOURTEENTH INTERNATIONAL CONFERENCE ON  
WEB HANDLING (IWEB 2017)  
OKLAHOMA STATE UNIVERSITY  
STILLWATER, OKLAHOMA**

**June 4-7, 2017**

**Advanced Technology Research Center  
Oklahoma State University**

**Sunday, June 4**

6:00-8:00 PM **Reception – ConocoPhillips OSU Alumni Center – Traditions Hall  
Registration**

**Monday, June 5 – 102 Advanced Technology Research Center           TAB**

|         |   |   |
|---------|---|---|
| 7:00 AM | <b>Registration, Coffee, Juice, Pastries</b>  |   |
| 8:00 AM | <b>Welcome</b> , Karl Reid and J. K. Good, Oklahoma State University, USA   |   |
| 8:30 AM | <b>Keynote Presentation:</b><br><i>Web Transport Modeling and Control: Historical and Current Perspective</i> , Prabhakar R. Pagilla, Texas A&M University, USA | 1 |

**Monday, June 5 (continued) – 102 Advanced Technology Research Center TAB**

**Session 1 – Longitudinal Dynamics/Tension Control**

*Session Chairs – TBD and Karl Reid*

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|----------|---|---|
| 9:20 AM  | <b><i>Machine Direction Registration Dynamics Model of a Rotary Printing Press</i></b> , Brian S. Rice, Rochester Institute of Technology, USA, and Robert L. Walton, USA | 2 |
| 9:45 AM  | <b><i>Calculation of Film Tension from Film Position and Roller Position</i></b> , Günter Oedl, Brückner Maschinenbau GmbH & Co. KG, GERMANY                              | 3 |
| 10:10 AM | <b>Break</b>  |   |
| 10:35 AM | <b><i>Modeling and Computer Simulation of Zero Speed Splice Unwinds</i></b> , Prabhakar R. Pagilla, Texas A&M University, USA   | 4 |
| 11:00 AM | <b><i>Longitudinal Tension in a Web Span</i></b> , Karl N. Reid, Moad Abudia and Ben Reish, Oklahoma State University, USA  | 5 |
| 11:25 AM | <b><i>Optimizing Idler Diameter</i></b> , Ronald J. Lynch, RJLynch & Associates, LLC, USA   | 6 |
| 11:50 AM | <b>Lunch in the Student Excellence Center</b>   |   |

**Session 2 – Winding**

*Session Chairs – TBD and Karl Reid*

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|--------------|---|----|
| 1:00 PM      | <b><i>A Study of Oscillation</i></b> , David R. Roisum, Finishing Technologies, Inc., USA   | 7  |
| 1:25 PM      | <b><i>Nip Impinged Center-Winding Including a Nonlinear Beam Model</i></b> , Cagri Mollamahmutoglu, Yildiz Technical University, TURKEY                                     | 8  |
| 1:50 PM      | <b><i>Using a Winding Model to Reduce Winding Defects</i></b> , Amy Thuer, Avery Dennison, USA  | 9  |
| 2:15 PM      | <b>Break</b>  |    |
| 2:40 PM      | <b><i>The Winding Mechanics of Laminate Webs</i></b> , Sheng Pan and J. K. Good, Oklahoma State University, USA   | 10 |
| 3:05-4:05 PM | <b><i>Discussion – Leaders: Steve Schramm and J. K. Good</i></b>  |    |
| 6:30 PM      | <b>Social &amp; Dinner, Donald W. Reynolds School of Architecture Building, 1<sup>st</sup> Floor Gallery. Entertainment: William Smith &amp; Band Map will be provided.</b> |    |

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| 7:30 AM | Coffee, Juice, Pastries |
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**Session 3 – Lateral Mechanics/Dynamics, Wrinkling, Web Nonuniformity and Friction**

*Session Chairs – Amy Thuer and J. K. Good*

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| 8:30 AM  | <i>The Effect of Mass Transfer on Multi-Span Lateral Dynamics of a Uniform Web</i> , Jerry L. Brown, Essex Systems, USA   | 11 |
| 8:55 AM  | <i>Boundary Conditions for Lateral Deformation of Webs Transiting Rollers in Roll-to-Roll Process Machines</i> , J. K. Good, Yao Ren and Jinxin Shi, Oklahoma State University, USA | 12 |
| 9:20 AM  | <i>The Effect of Mass Transfer on Multi-Span Lateral Dynamics of Nonuniform Webs</i> , Jerry L. Brown, Essex Systems, USA   | 13 |
| 9:45 AM  | <b>Break</b>  |    |
| 10:10 AM | <i>Measurement and Quantification of Baggy Webs</i> , Ronald P. Swanson, 3M Company, USA  | 14 |
| 10:35 AM | <i>Explicit Simulation of Wrinkle Formation Due to Web Non-Uniformity</i> , Boshen Fu, Eric Gilgenbach, Katie Nackers and Russ Brumm, Kimberly-Clark Corporation, USA               | 15 |
| 11:00 AM | <i>Wrinkling Mechanisms of Non-Wovens with Spatially Varying Material Properties</i> , Rich Hamm, Jeremy Carrle and Steve Lange, Procter & Gamble, USA                              | 16 |
| 11:25 PM | <i>A New Model for the Steady State Deformation and Friction of Webs on Rollers</i> , Dilwyn P. Jones, Emral Ltd, UNITED KINGDOM  | 17 |
| 11:50 AM | <b>Lunch in the Vogt Room</b>   |    |
| 12:50 PM | <i>Data Analytics to Predict and Prevent Issues in Roll-to-Roll Manufacturing</i> , Aravind Seshadri and Carlo Branca, Roll-2-Roll Technologies LLC, USA                            | 18 |
| 1:15 PM  | <i>Discussion – Leaders: David Roisum and Tim Walker</i>  |    |
| 2:15 PM  | <b>Tour of Laboratories in the Web Handling Research Center</b>   |    |
| 4:30 PM  | <b>Board Buses East of ATRC Building for Trip to Tulsa</b>  |    |
| 6:00 PM  | <b>Social &amp; Dinner – Gilcrease Museum. Entertainment: <i>Tour Museum</i></b>  |    |

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| 7:30 AM | <b>Coffee, Juice, Pastries</b> |
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**Session 4 – Nano Impression Lithography**  
*Session Chairs – Günter Oedl and Karl Reid*

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|----------|---|----|
| 8:20 AM  | <b>Announcements – Karl Reid</b>  |    |
| 8:30 AM  | <b>Keynote Presentation:</b><br><i>The Path to Roll-to-Roll Nanoimprinting and Future Opportunities</i> , L. Jay Guo, The University of Michigan, USA   | 19 |
| 9:20 AM  | <i>The Nip Mechanics of Nano-Impression Lithography in Roll-to-Roll Process Machines</i> , Yao Ren and J. K. Good, Oklahoma State University, USA       | 20 |
| 9:45 AM  | <i>Lateral Behavior of Moving Webs: A New Look at Modeling and Control</i> , Edison O. Cobos Torres and Prabhakar R. Pagilla, Texas A&M University, USA | 21 |
| 10:10 AM | <b>Break</b>  |    |
| 10:35 AM | <i>Impact of Large Deformations of Webs Transiting Rollers</i> , Jinxin Shi and J. K. Good, Oklahoma State University, USA                              | 22 |

**Session 5 – Nip Mechanics**  
*Session Chairs – Günter Oedl and Karl Reid*

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| 11:00 AM | <i>Optimizing Nipped Roller Systems</i> , Timothy J. Walker, TJWalker + Associates Inc., USA   | 23 |
| 11:25 AM | <i>Web Curl and Web Curl Measurement</i> , Ronald P. Swanson, 3M Company, USA  | 24 |
| 11:50 AM | <b>Lunch in the Vogt Room</b>  |    |
| 1:00 PM  | <i>Roller Nip Deflections</i> , Kevin Cole and Brooks Schneider, Optimization Technology, USA  | 25 |
| 1:25 PM  | <i>Preventing Negative Issues at Nip Roller</i> , Tom Bass, Mitsubishi Rayon Carbon Fiber & Composites, Inc., USA & Atsushi Nagahori, Mitsubishi Chemical Corporation, JAPAN | 26 |
| 1:50 PM  | <b>Break</b>   |    |
| 2:15 PM  | <i>Discussion – Leaders: Steve Lange &amp; Neal Michal</i>   |    |
| 3:15 PM  | <b>Closure and Presentation of Best Paper Awards</b>   |    |
|          | <b>List of Attendees</b>   | 27 |