CONTENTS

KEYNOTE PRESENTATION I

*Advanced Process Models and Control Strategies for Rotary Printing Presses*
G. Brandenburg, Technische Universität, Germany .......................... 1

**TENSION CONTROL, TENSION EFFECTS, AND ELECTROSTATICS**

*Web Tension Behavior in the Presence of Eccentric Rollers: Modeling and Validation*
C. Branca, P. Pagilla and K. Reid, Oklahoma State University, USA ........................................... 47

*Web Tension Variations Caused by Temperature Changes and Slip on Rollers*
D. Jones¹, M. McCann², and S. Abbott³, ¹Emral Ltd, United Kingdom, ²McCann Science, USA, ³Steven Abbott TCNF Ltd, United Kingdom ........................................... 65

*Modeling and Frequency Response of Web Tension with a Pendulum Dancer, and Comparison of Load-Cell and Dancer Based Tension Control Systems*
P. Raul and P. Pagilla, Oklahoma State University, USA ....................... 85

*The Ke Models: Theoretical Dynamic Subsystems of Longitudinal Web Strain*
Gary P. Strike, Webtech Omega, LLC, USA ........................................... 105

*Modeling and Analysis of Rotogravure Printing Presses*
A. Seshadri¹, P. Pagilla¹, and J. Lynch², ¹Oklahoma State University, ²Armstrong World Industries, USA ........................................... 131

*Multi-stage Tensile Straining during Drying of SC Paper*
J. Kouko¹ and P. Kekko², ¹VTT Technical Research Centre, ²Metso, Finland ........................................... 151
Bagginess and Baggy Streaks: A Novel Measurement Technique to Quantify Tension Profile of a Web in Cross-Direction at High Resolution
F. Parent and J. Hamel, FP Innovations, Canada 171

Controlling Static on an Unwinding Roll
K. Robinson, Electrostatic Answers LLC., USA 191

DISCUSSION I 205

KEYNOTE PRESENTATION II

Winder Vibration: Causes, Defects, and Remedies
M. Jorkama, Metso Paper, Finland 215

WINDING, LATERAL MECHANICS, AND WRINKLING

Movement of Layers and Induced Tension in the Nip Area between Drum and Paper Layers
Peter Hoffmann¹, Michael Desch², and Edgar Dörsam², ¹Stora Enso Research Centre, Mönchengladbach, ²Institute of Printing Science and Technology, Technische Universität Darmstadt, Germany 221

The Use of Conservation of Mass in Modeling Lateral Behavior in Moving Webs
J. Brown, Essex Systems, USA 233

Explicit Analysis of the Lateral Mechanics of Web Spans
B. Fu, R. Markum, A. Reddy, S. Vaijapurkar, and J. K. Good, Oklahoma State University, USA 259

Two-Dimensional Behavior of a Thin Web on a Roller
J. Brown, Essex Systems, USA 281

Explicit Analysis of the Lateral Mechanics of Webs Transiting Concave Rollers
S. Vaijapurkar and J. K. Good, Oklahoma State University, USA 301
Wrinkling of Foils
T. Walker\textsuperscript{1}, K. Cole\textsuperscript{2}, S. Zagar\textsuperscript{3}, and Jeffrey Quass\textsuperscript{3},
\textsuperscript{1}TJWalker+Associates, Inc., \textsuperscript{2}Optimation Technology Inc., \textsuperscript{3}Megtec Systems, Inc., USA
\hline
325

Analysis of Web Wrinkling in Accumulators
N. Michal, B. Kandadai, and A. Patil, Kimberly-Clark Corporation, USA
\hline
339

Wrinkling of Wide Webs
T. Walker\textsuperscript{1} and K. Cole\textsuperscript{2}, TJWalker+Associates, Inc., Optimation Technology Inc., USA
\hline
367

DISCUSSION II
\hline
387

WEB HANDLING

A Century of Web Handling Literature
D. Roisum, Finishing Technologies, Inc., USA
\hline
395

Measurement of Web Feed Rates in Rubber Covered Nip Roller Applications and the Impact on Wrinkle Formation
K. Cole\textsuperscript{1} and T. J. Walker\textsuperscript{2}, Optimation Technology, Inc., TJWalker+Associates, Inc., USA
\hline
407

Determining the Amount of Sheets in a Stack of Paper by Using a Pressure Stamp
M. Desch and E. Dörsam, Technische Universität Darmstadt, Germany
\hline
429

The Advantages of Inertial Roll Alignment Device in Eliminating Web Handling Issues
C. Woo, PRÜFTECHNIK Service, Inc., USA
\hline
451

DISCUSSION III
\hline
463