

53rd Annual Rocky Mountain Bioengineering Symposium & 53rd International ISA Biomedical Sciences Instrumentation Symposium 2016

ISA Volume 511

Denver, Colorado, USA
8-10 April 2016

Editors:

Lee Waite

Steven Barrett

ISBN: 978-1-5108-3033-2

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by International Society of Automation - ISA
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact International Society of Automation - ISA
at the address below.

International Society of Automation - ISA
67 Alexander Drive
Research Triangle Park, NC 27709 USA

Phone: (919) 549-8411

Fax: (919) 549-8288

info@isa.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

**53rd Annual Rocky Mountain Bioengineering Symposium
Program, April 8-10, 2016
Crown Plaza DIA, Denver, CO**

Conference Chair	Program Chairs
Carolyn Sterling and Janet Corona	Lee Waite, Rose-Hulman Institute of Technology Steven Barrett, University of Wyoming

Thursday, April 7, 2016

- **Activity:** Conference Registration
- **Time:** 4:00 – 7:00 PM
- **Location:** Lobby, Crown Plaza DIA
- **Primary Contact:** Carolyn Sterling and Janet Corona

Friday, April 8, 2016 - Plenary Session I

Location: Crown Plaza DIA

7:00 – 7:30AM	Registration and Continental Breakfast
7:30 – 8:00 AM	Conference Welcome: - RMBS President – Julian Thayer - 2016 Program Chairs: Lee Waite, Steve Barrett
8:00 – 9:00 AM	Keynote Address 1: Dr. Paul Frenger, M.D., A Working Hypothesis, Inc. “Research from the Outside In”
9:00 – 9:20 AM	Break – refreshments

Friday, April 8, 2016 - Session 1 – 6 papers, Topic: Biomechanics

Session Chair: Lee Waite

9:20 – 9:40 AM	QUANTITATIVE EVALUATION OF HEAD MOTION KINEMATICS BETWEEN HUMAN BODY MODELS OF VARYING COMPLEXITY 1 William B. Decker, ^{1,2} Bharath Koya, ¹ Matthew L. Davis, ^{1,2} F. Scott Gayzik ^{1,2} 1. Wake Forest University School of Medicine 2. Virginia Tech – Wake Forest University Center for Injury Biomechanics
9:40 – 10:00 AM	VALIDITY OF THE THEORETICAL LIMIT OF STABILITY IN ATHLETES – PRELIMINARY INVESTIGATION 10 Sam Gibbs, ¹ Guido Pagnacco, ² Elena Oggero ² 1. Canada Basketball – Toronto, ON 2. Electrical and Computer Engineering Department – University of Wyoming – Laramie, WY
10:00 – 10:20 AM	COMPARISON OF STANDARD AND Y-BELT AIRCRAFT PASSENGER RESTRAINTS IN FRONTAL IMPACTS WITH PMHS AND ATD 17 John Humm, ¹ John DeRosia, ¹ Frank Pintar, ¹ Narayan Yoganandan, ¹ Amanda Taylor, ² David Moorcroft, ² Rick DeWeese, ² Brian Peterson, ³ 1. Department of Neurosurgery, Medical College of Wisconsin, 9200 West Wisconsin Avenue, Milwaukee, WI, 53226, USA 2. Civil Aerospace Medical Institute, 6500 S. MacArthur Blvd, Oklahoma City, OK, 73169, USA 3. Milwaukee County Medical Examiner’s Office, 933 West Highland Avenue, Milwaukee, WI, 53233, USA

10:20 – 10:40 AM	<p>COMPARISON OF HEAD IMPACT MEASUREMENT DATA COLLECTED DURING ROUTINE PARTICIPATION OF DIVISION III COLLEGE FOOTBALL PLAYERS 26</p> <p>Alok Shah, James Murtha, John Humm, Daniel Sjoquist, Rachel Chiariello, Ashley LaRoche, Brian Stemper, Michael McCrea</p> <ol style="list-style-type: none"> 1. Department of Neurosurgery, Medical College of Wisconsin & Veterans Affairs Medical Center, 5000 West National Avenue, Research 151, Milwaukee, Wisconsin, 53295
10:40 – 11:00 AM	<p>RESPONSES OF THE CERVICAL DISC UNDER CYCLIC LOADING: DATA FOR FINITE ELEMENT MODELS 32</p> <p>Sagar Umale,¹ Narayan Yoganandan,¹ William Curry,¹ Brian Stemper,¹ Brian Snyder²</p> <ol style="list-style-type: none"> 1. Department of Neurosurgery, Medical College of Wisconsin, and VA Medical Center, Milwaukee, WI 2. Beth Israel Deaconess Medical Center, Harvard Medical School, and Cerebral Palsy Clinic Children's Hospital, Boston, MA
11:00 – 11:20 AM	<p>AUTOMATED ANALYSIS OF DRIVER RESPONSE IN A FINITE ELEMENT CRASH TEST RECONSTRUCTION 43</p> <p>Xin Ye^{1,2}, James P. Gaewsky,^{1,2} Bharath Koya,^{1,2} Derek A. Jones,^{1,2} Ryan Barnard,¹ Ashley A. Weaver,^{1,2} Joel D. Stitzel^{1,2}</p> <ol style="list-style-type: none"> 1. Wake Forest School of Medicine 2. Virginia Tech - Wake Forest University Center for Injury Biomechanics

Lunch 11:30 – 12:30 Lunch

12:30 - 1:30 Poster session I (10 papers) – posters available for preview during lunch

<p>CHARACTERIZATION OF TETRACALCIUM PHOSPHATE CERAMIC DELIVERY DEVICES: POLYMER IMPREGNATION IMPACT 52</p> <p>Hamed Benghuzzi; Ph.D.; FBSE, FAIMBE and Michelle Tucci; Ph.D., FAIMBE</p> <ol style="list-style-type: none"> 1. University of Mississippi Medical Center, Jackson, MS 39110
<p>EVALUATION OF POLY (LACTIC-CO-GLYCOLIC ACID) AND POLYCAPROLACTONE ENCAPSULATED VANCOMYCIN FOR CONTROLLED DRUG DELIVERY FROM A BONE VOID FILLING PUTTY 58</p> <p>John P. Curley,¹ Devin Ortiz,² Benjamin D. Brooks,³ Amanda E. Brooks,^{1,2}</p> <ol style="list-style-type: none"> 1. Department of Pharmaceutical Sciences, North Dakota State University, Fargo, ND, 58105 2. Department of Pharmaceutics and Pharmaceutical Chemistry, University of Utah, Salt Lake City, UT, 84112 3. Wasatch Microfluidics, Salt Lake City, UT, 84103
<p>COMPARATIVE ANALYSIS OF UNIVERSALLY USED RESTORATIVE DENTAL MATERIALS ON THE ARCHITECTURAL STABILITY OF GINGIVAL FIBROBLASTS 65</p> <p>Angelia D. Garner,¹ Michelle A. Tucci,² Hamed A. Benghuzzi¹</p> <ol style="list-style-type: none"> 1. Clinical Health Sciences Graduate Program, University of Mississippi Medical Center, Jackson, MS 39216 2. Department of Anesthesiology, University of Mississippi Medical Center, Jackson, MS 39216

<p>USING ENGINEERING TO UNRAVEL THE MYSTERY OF SPIDER SILK FIBER FORMATION 73</p> <p>Bradley Hoffmann,¹ Austin Nodland,¹ Catherine Gruat-Henry,¹ Ben Brooks,² Amanda E Brooks,³</p> <ol style="list-style-type: none"> 1. Department of Electrical Engineering, North Dakota State University, Fargo, ND, 58105 2. Wasatch Microfluidics, Salt Lake City, Utah, 84103 3. Department of Pharmaceutical Sciences, North Dakota State University, Fargo, ND, 58105
<p>THE EFFECTS OF TROGLITAZONE AND EGCG ON PANC-1 CELL SURVIVAL 81</p> <p>Victoria Doyne, Michelle Tucci, and Hamed Benghuzzi</p> <ol style="list-style-type: none"> 1. University of Mississippi Medical Center, Jackson, MS 39216
<p>CARDIOMYOCYTES CAN BE USED TO STUDY THE SAFETY OF ANTIDIABETIC AND ANTIDEPRESSANT AGENTS 88</p> <p>Shana Nelson,¹ Michelle Tucci,¹ Joseph Cameron,² and Hamed Benghuzzi¹</p> <ol style="list-style-type: none"> 1. University of Mississippi Medical Center, Jackson, MS 39216 2. Jackson State University, Jackson, MS 39217
<p>CELLULAR GLYCOLYSIS AND THE DIFFERENTIAL SURVIVAL OF LUNG FIBROBLAST AND LUNG CARCINOMA CELL LINES 96</p> <p>Ibrahim O. Farah</p> <ol style="list-style-type: none"> 1. Department of Biology, Jackson State University, Jackson, MS 39217
<p>IMPACT OF TRIPLE COMBINATIONS OF RETINOIC ACID, MOLD SPORES AND CITRAL ON THE F344 RAT LUNG TISSUE PATHOLOGY 104</p> <p>Ibrahim O. Farah,¹ Carlene Holt-Gray,¹ Joseph A. Cameron,¹ Michelle Tucci,² Zelma Cason² and Hamed Benghuzzi²</p> <ol style="list-style-type: none"> 1. Department of Biology, Jackson State University, Jackson, MS 39217 2. University of Mississippi Medical Center, Jackson, MS 39216
<p>THE TISSUE IMPLANT RESPONSE SURROUNDING TCP IMPLANTS CONTAINING DEMINERALIZED BONE MATRIX PROTEINS 112</p> <p>Michelle Tucci,¹ Kenneth Butler,¹ Ibrahim Farah,² Adel Mohamed,³ Zelma Cason,¹ Jamil Ibrahim,¹ Robert McGuire,¹ and Hamed Benghuzzi,¹</p> <ol style="list-style-type: none"> 1. University of Mississippi Medical Center, Jackson, MS, 39216 2. Jackson State University, Jackson, MS 39217 3. University of Saskatchewan, Saskatoon, SK, Canada
<p>IC50 FOR EGCG, TQ, AND 5-FU INHIBIT CELL GROWTH AND INDUCE APOPTOSIS IN FADU NASOPHARYNGEAL CARCINOMA CELLS 118</p> <p>Sharita Williams, Michelle Tucci, and Ham Benghuzzi</p> <ol style="list-style-type: none"> 1. University of Mississippi Medical Center
<p>RADIO FREQUENCY ENERGY AS A DRUG DELIVERY METHOD N/A</p> <p>Austin T. Pullan,¹ Jessica E. Pullan,¹ Bryce Taylor,¹ Ryan Striker,³ Mary Pearson,³ Amanda E. Brooks,² Dan Ewert,³ Helen Boswell,¹</p> <ol style="list-style-type: none"> 1. Southern Utah University, Cedar City, UT 2. Department of Pharmaceutical Science, North Dakota State University, Fargo, ND 3. Department of Electrical and Computer Engineering, North Dakota State University, Fargo, ND

Friday, April 8, 2016 - Plenary Session II**Location: Crown Plaza DIA**

1:30 -2:30 PM	Keynote Address 2: Dr. Elena Oggero, Ph.D. and Dr. Guido Pagnacco, Ph.D. “Starting Your Own Business – The Good, The Bad, and the Ugly”
---------------	---

Friday, April 8, 2016 - Session 2 – Topic: Bioimaging and Biotechnology – 4 papers**Session Chair: Steve Barrett**

2:30 – 2:50 PM	MICROTUBULE MOTILITY ANALYSIS BASED ON TIME-LAPSE FLUORESCENCE MICROSCOPY 126 S. Masoudi, ¹ C. H.G. Wright, ¹ J. C. Gatlin, ² and J. S. Oakey ³ 1. Electrical and Computer Engineering Department, University of Wyoming, Laramie, WY 82071 2. Molecular Biology Department, University of Wyoming, Laramie, WY 82071 3. Chemical Engineering Department, University of Wyoming, Laramie, WY 82071
2:50 – 3:10 PM	ANALYSIS OF BREAST THERMOGRAM USING BLS-GSM TECHNIQUE AND TOTAL VARIATION DIFFUSION FILTER BASED LEVEL SET 134 J Thamil Selvi, ¹ G Kavitha, ² C M Sujatha ³ 1. Department of Electronics and Communication Engineering, Sri Sairam Engineering College, West Tambaram, Chennai, India 2. Department of Electronics Engg. MIT Campus, Chennai, India 3. Department of ECE, Anna University, CEG Campus, Chennai, India.
3:10 – 3:30 PM	SELECTIVE LASER SINTERING (SLS) RAPID PROTOTYPING TECHNOLOGY: A REVIEW OF MEDICAL APPLICATIONS 142 Mona Saffarzadeh, Gregory James Gillispie, Philip Brown 1. Virginia Tech-Wake Forest University Center for Injury Biomechanics, 575 N. Patterson Ave., Winston-Salem, NC
3:30 – 3:50 PM	COMPARISON OF TWO METHODS OF ILLUMINATION CORRECTION FOR HEp-2 IMAGES 150 P.Suhail Parvaze, D.R.Raghuram and S.Ramakrishnan 1. Non-Invasive Imaging and Diagnostics Laboratory, Biomedical Engineering Group, Department of Applied Mechanics, Indian Institute of Technology Madras, Chennai, India 600036
3:50 – 4:00 PM	Break - refreshments

Notes:

Friday, April 8, 2016 - Session 3 – Topic: Bioinstrumentation and Biological Signal Analysis – 4 papers

Session Chair: Matt Baretich

4:00 – 4:20 PM	<p>A MICROFLUIDIC PLATFORM FOR CONTINUOUS MONITORING OF DRUG RELEASE KINETICS 158</p> <p>Mohammad Raquibul Hasan,¹ Jordan Nodland,² Amanda E. Brooks¹</p> <ol style="list-style-type: none">1. Department of Pharmaceutical Science, North Dakota State University, Fargo, ND2. Department of Electrical and Computer Engineering, North Dakota State University, Fargo, ND
4:20 – 4:40 PM	<p>ANALYSIS OF SPIROMETRIC DATA USING CUCKOO SEARCH ALGORITHM AND KERNEL BASED MULTI-CLASS SUPPORT VECTOR MACHINES 165</p> <p>S. Bhavanisankari,¹ S. Srinivasan²</p> <ol style="list-style-type: none">1. Department of ECE, Jerusalem College of Engineering, Chennai, India.2. Department of Instrumentation Engg., MIT Campus, Anna University, Chennai, India.
4:40 – 5:00 PM	<p>DIFFERENCES IN ESTIMATED CARDIAC OUTPUT IN RELATION TO CARDIAC RISK FACTORS 173</p> <p>Kenneth R. Butler,^{1,2} Hamed A. Benghuzzi,¹ Michelle Tucci,¹ Julian F. Thayer³</p> <ol style="list-style-type: none">1. University of Mississippi Medical Center, Jackson, Mississippi2. Mississippi College, Clinton, Mississippi3. Ohio State University, Columbus, Ohio
5:00 – 5:20 PM	<p>MUSCLE FATIGUE ANALYSIS IN TRANSTIBIAL AMPUTEES DURING ISOMETRIC CONTRACTION USING SURFACE ELECTROMYOGRAPHY SIGNALS AND MULTIFRACTAL TECHNIQUES 181</p> <p>Kiran Marri,¹ Ramakrishnan Swaminathan,¹ Priyadarshini,² C. Subramaniam²</p> <ol style="list-style-type: none">1. Non-Invasive Imaging and Diagnostics Laboratory, Biomedical Engineering Group, Department of Applied Mechanics, Indian Institute of Technology Madras, Chennai, INDIA 600 0362. Physical Medicine and Rehabilitation, Government Institute of Rehabilitation (Madras Medical College), Chennai, India 600 076

6:30 PM – 8:30 PM President’s Banquet

- **RMBS President: Julian Thayer - President’s Award Recognition**

Notes:

Saturday, April 9, 2016 - Plenary Session III**Location:** Embassy Suites Hotel

8:00 – 9:00 AM	Continental breakfast
9:00 – 10:00 AM	Keynote Address 3: Matt Baretich “How to Become a Consultant and Have Fun Doing It!”
10:00 – 10:20 AM	Break – refreshments

Saturday, April 9, 2016 Session 4 – 4 papers, Session papers, Topic: Biomaterials and Tissue Engineering**Session Chair: Cameron H.G. Wright**

10:20 – 10:40 AM	ENHANCING MACROPHAGE BEHAVIOR SURROUNDING AMINO ACID COATED UHMW-PE IMPLANTED SUBCUTANEOUSLY 189 Kenneth R. Butler, ^{1,2} Hamed A. Benghuzzi, ¹ Michelle Tucci, ¹ Aaron D. Puckett ¹ 1. University of Mississippi Medical Center, Jackson, Mississippi 2. Mississippi College, Clinton, Mississippi
10:40 – 11:00 AM	THE ANTINOCICEPTIVE EFFICACY OF CHRONIC FLUOXETINE TREATMENT 197 Gerri A. Wilson, Michelle A. Tucci, and Hamed A. Benghuzzi 1. University of Mississippi Medical Center, 2500 North State St., Jackson, MS 39216
11:00 – 11:20 AM	ASSESSMENT OF SUSTAINED DELIVERY OF ANTIOXIDANTS ON CAO-V-3 AND SK-OV-3 OVARIAN CANCER LIKE CELL LINES 203 Jennifer L. Harpole, Michelle Tucci, and Hamed Benghuzzi 1. Clinical Health Sciences, University of Mississippi Medical Center, Jackson, MS 39216
11:20 – 11:40 AM	NEOVASCULARIZATION AND FIBROBLAST BEHAVIOR UNDER THE INFLUENCE OF ANDROGENS IN THE TISSUE-IMPLANT RESPONSE 210 Kenneth R. Butler, ^{1,2} Hamed A. Benghuzzi, ¹ Michelle Tucci, ¹ Aaron D. Puckett ¹ 1. University of Mississippi Medical Center, Jackson, Mississippi 2. Mississippi College, Clinton, Mississippi

Notes:

Lunch 11:40 – 12:30 Lunch

12:30 -1:30 PM Poster session II (10 papers) – posters available for preview during lunch

Poster Title
DIAGNOSIS OF AUTOIMMUNE DISEASES USING HEP-2 STAINING PATTERN AND LOCAL DERIVATIVE PATTERN FEATURES 218 Allmin Pradhap Singh S and Ramakrishnan S 1. Non Invasive Imaging and Diagnostics Lab, Biomedical Engineering Group, Department of Applied Mechanics, Indian Institute of Technology Madras, Chennai, 600036, India.
CAROTID ARTERY WALL TRACKING FOR ARTSENS™ TECHNOLOGY 224 Sharat S. Embrandiri, ¹ Ashwin K. Vijayan, ² and Ranjan Piyush ¹ 1. Department of Applied Mechanics, IIT Madras, Chennai, India, 600036 2. Department of Electrical Engineering, IIT Madras, Chennai, India, 600036
AN INVESTIGATION OF PACING TIME ADJUSTMENT TO IMPROVE CARDIAC DYSSYNCHRONY 232 Peter Hettwer, Roger Green, and Dan Ewert 1. Electrical and Computer Engineering, North Dakota State University, Fargo, ND
THE CAPILLARY-CENTRIC MODEL OF CARDIAC COUPLING-AS-THERMODYNAMICS 239 Drew Taylor 1. NDSU Dept 2480, PO Box 6050, Fargo, ND 58108-6050
LOW LEVEL LASER THERAPY IMPROVES LEARNING AND MEMORY FUNCTIONS IN NEONATAL RATS FOLLOWING HYPOXIC ISCHEMIC BRAIN INJURY 246 Min Huang, Yangzhen Feng, Felix Adah, Hamed Benghuzzi, and Michelle Tucci 1. University of Mississippi Medical Center, Jackson, MS.
EFFECT OF CORTISOL AND GREEN TEA EXTRACT ON LUNG FIBROBLAST CELLS 252 William Martin, ¹ Joseph A. Cameron, ¹ Michelle Tucci, ² and Hamed Benghuzzi ² 1. Jackson State University 2. University of Mississippi Medical Center, Jackson, MS 39216
HUMAN ADENOCARCINOMA ALVEOLAR BASAL EPITHELIAL CELL LINE RESPONSE UPON EXPOSURE OF INTERLEUKINS IN CULTURE 258 Jana Bagwell, ¹ Hamed Benghuzzi, ¹ and Michelle Tucci ² 1. School of Health Related Professions 2. Department of Anesthesiology, University of Mississippi Medical Center, Jackson, MS 39216
EXAMINING THE ASSOCIATION BETWEEN THE LOW-TO-HIGH-FREQUENCY RATIO AND IMPEDANCE DERIVED MEASURES OF CARDIAC AUTONOMIC BALANCE AND REGULATION 264 DeWayne P. Williams, ¹ LaBarron K. Hill, ^{2,3} Julian Koenig, ^{1,4} Julian F. Thayer ¹ 1. Department of Psychology, The Ohio State University, Columbus OH 2. Department of Psychiatry, Duke University Medical Center, Durham, NC, USA 3. Center for the Study of Aging and Human Development, Duke University Medical Center, Durham, NC, USA 4. Department of Child and Adolescent Psychiatry, Centre for Psychosocial Medicine, University of Heidelberg, Heidelberg, Germany
THE eDocScribe MEDICAL AMANUENSIS 271 Paul Frenger ¹ 1. A Working Hypothesis, Inc.

Saturday, April 9, 2016 - Session 5 – 3 papers, Topic: Human Mechanics, 3 papers

Session Chair: Ken Butler

1:30 – 1:50 PM	<p>USE OF WEARABLE TECHNOLOGY IN MONITORING HRV DURING MIND-BODY EXERCISE (TAI CHI) 278</p> <p>Manoj Panta,¹ James H. Cox III,² Alvaro Gurovich,³ Roy W. Geib,⁴ Safa Alakhhair,¹ Arnan Rahmatullah,¹ Gabi N. Waite²</p> <ol style="list-style-type: none">1. Dept. of Biology, Indiana State University – Terre Haute, IN2.2. Dept. of Cellular and Integrative Physiology, Indiana University School of Medicine – Terre Haute, IN3. Dept. of Applied Medicine and Rehabilitation, Indiana State University4. Dept. of Microbiology and Immunology, Indiana University School of Medicine – Terre Haute, IN
1:50 – 2:10 PM	<p>MARKERLESS UPPER EXTREMITY MOTION ANALYSIS TO QUANTIFY FUNCTIONAL ASSESSMENT IN CHILDREN WITH ORTHOPAEDIC DISABILITIES 284</p> <p>Jacob R. Rammer,¹ Joseph J. Krzak,^{2,3} Susan A. Riedel,¹ Peter A. Smith,² and Gerald F. Harris,^{1,2}</p> <ol style="list-style-type: none">1. Orthopaedic and Rehabilitation Engineering Center (OREC), Marquette University Dept. of Biomedical Engineering and Medical College of Wisconsin Dept. of Orthopaedic Surgery, Milwaukee, WI2. Shriners Hospitals for Children, Chicago, IL3. Midwestern University, College of Health Sciences, Physical Therapy Program, Downers Grove, IL
2:10 – 2:30 PM	<p>HEAD ANGULAR ACCELERATIONS DURING MOTOR VEHICLE SIDE AND FRONTAL IMPACTS 292</p> <p>Brian D. Stemper, Jason J. Hallman, Alok Shah, and Frank A. Pintar</p> <ol style="list-style-type: none">1. Department of Neurosurgery, Medical College of Wisconsin, Milwaukee, WI2. Clement J Zablocki Veterans Affairs Medical Center, Milwaukee, WI
2:30 – 2:40 PM	Break - refreshments

Notes:

Saturday, April 9, 2016 - Session 6 – 3 papers, Topic: Clinical Topics

Session Chair: Lee Waite

2:40 – 3:00 PM	ACCURACY, PRECISION AND CONSISTENCY OF ROBOT AND THERAPIST GENERATED HORIZONTAL HEAD MOTIONS FOR GAZE STABILIZATION REHABILITATION – PRELIMINARY INVESTIGATION 300 Frederick R. Carrick, ^{1,2,3} Guido Pagnacco, ^{1,4} Derek A. Barton, ^{1,5} Ethan M. Joubran, ⁵ Matthew M. Antonucci, ^{1,5} Cameron H.G. Wright, ^{1,4} Elena Oggero, ^{1,4} <ol style="list-style-type: none">1. Carrick Institute for Graduate Studies, Cape Canaveral, FL2. Harvard Medical School GCSRT, Boston, MA3. Bedfordshire Centre for Mental Health Research, University of Cambridge, Cambridge, UK4. Electrical and Computer Engineering Department, University of Wyoming, Laramie, WY5. Plasticity Brain Centers, Orlando, FL
3:00 – 3:20 PM	RECOIL MEASUREMENT AND COMPARISON OF HUMAN FACTORS DESIGNED HANDGUN 308 David C. Paulus <ol style="list-style-type: none">1. Mechanical Engineer, Paulus Consulting LLC, Fort Smith, AR
3:20 – 3:40 PM	PYRAMIDAL ABSORBERS IN CLOSE-PROXIMITY TO TEST SUBJECTS 314 Ryan Striker, Branden Kaste, Jared Hansen, Andrew Taylor, Daniel Ewert <ol style="list-style-type: none">1. North Dakota State University, 1411 Centennial Blvd. Fargo, ND, 58102

6:30 PM – 8:30 PM Awards Banquet

- Student awards

7:00 – 9:00 AM Sunday, April 10, 2016 - RMBS Executive Board Meeting Breakfast

Notes: