Japan Society of Mechanical Engineers / Materials and Mechanics Division

2016 M&M International Symposium for Young Researchers

August 10-12, 2016, Stony Brook University, NY, USA

Preliminary Program

Wednesday, August 10

18:00 – 20:00: Reception at Hilton Garden Inn

Thursday, August 11

Simon Center Auditorium

8:40 – 9:00: Opening Address

Yoshinobu Shimamura (Shizuoka Univ.), **Toshio Nakamura** (Stony Brook Univ.)

9:00 – 10:20: Session I: Composites

Chair: **K. Takahashi**

11 Design advanced sandwich core materials with tunable polymer cellular structures using 3D printing technique, **Lifeng Wang** (Stony Brook Univ.)

12 Reconstruction of three-dimensional model of a unidirectional carbon fiber reinforced plastic during compressive loading by mean of X-ray computed tomography, **Masahito Ueda** (Nihon Univ.)

13 Damage development analysis under biaxial loading for plain-woven laminate composites based on homogenization theory, **Keita Goto** (Nagoya Univ.)

14 Numerical damage simulation of plain-woven laminates: effects of laminate misalignment, **Gai Kubo** (Univ. of Tsukuba)

10:20 – 10:40: Coffee Break

10:40 – 12:20: Session II: Metals

Chair: **S. Chen**

21 Electromigration in eutectic Sn58Bi solder strips, **Xu Zhao** (Akita Univ.)

22 An experimental evaluation of the hydrogen concentration around a notch using an X-ray diffraction analysis, **Osamu Takakuwa** (Tohoku Univ.)

23 A universal discrete dislocation model for thermal activation and diffusion-assisted climb, **Srinath Chakravarthy** (Northeastern Univ.)

24 A simple method to estimate surface texture parameters by inverse analysis of dynamic characteristics, **Yoshinao Kishimoto** (Tokyo City Univ.)

25 Roughness evaluation of non-periodic back surface using ultrasonic, **Yu Kurokawa** (Tokyo Inst. Tech.)

12:20 – 13:20: Lunch at Simon Center Café (2nd floor)

13:20 – 14:00: Plenary Lecture

Chair: **Y. Shimamura**

Mechanics of cell-matrix interactions in three-dimensions
Guruswami Ravichandran (Caltech)

14:00 – 15:20: Session III: Advanced Materials 1

Chair: **T. Matsuda**

31 A WENO finite-difference scheme for a new class of Hamilton-Jacobi equations in nonlinear electroelastostatics, **Oscar Lopez-Pamies** (Univ of Illinois.)

32 Damage evaluation of DLC film for die mold releasing by thermal shock test, **Hiroaki Ito** (Aoyama Gakuin Univ.)

33 Strengthening of untwisted carbon nanotube yarn by graphitization treatment, **Taesung Kim** (Waseda Univ.)

34 Design for discovery: Topology optimization of multi-material mechanical metamaterials with a reconciled level-set method, **Shikui Chen** (Stony Brook Univ.)

15:20 – 15:40: Coffee Break

15:40 – 17:00: Session IV: Advanced Materials 2 Chair: **Y. Toku**

41 Proposal of an estimation method of three-dimensional residual stresses in thermal sprayed pipe via X-ray measurements, **Masaru Ogawa** (Yokohama National Univ.)
42 Multiscale simulations of wave propagation in heterogeneous media, **Celia Reina-Romo** (Univ. of Pennsylvania)
43 Micro-scale interface strength evaluation for solid state bonded materials, **Yuji Ichikawa** (Tohoku Univ.)
44 Mechanistic coupling of dislocation and shear transformation zone plasticity in crystalline-amorphous nanolaminates, **Jason Trelewicz** (Stony Brook Univ.)

18:30: Banquet at Simon Center Cafe

Friday, August 12

Simon Center Auditorium

8:40 – 10:00: Session V: Advanced Materials 3 Chair: **O. Lopez-Pamies**

51 Modeling mechanochemically responsive elastomers, **Meredith Silberstein** (Cornell Univ.)
52 Multiscale seamless-domain analysis for multilayered structures and heterogeneous materials, **Yoshiro Suzuki** (Tokyo Inst. Tech.)
53 An investigation into the strength and toughness properties in marine glass fibers, **Haneesh Kesari** (Brown Univ.)
54 Effects of cavity growth on peel transition of adhesive film, **Kosuke Takahashi** (Hokkaido Univ.)

10:00 – 10:20: Coffee Break

10:20 – 11:00: Plenary Lecture Chair: **T. Nakamura**

Integrity assessment of multi-material structures and evaluation of interfacial strength
Kikuo Kishimoto (Tokyo Inst. Tech.)

11:00 – 12:20: Session VI: Fracture Chair: **M. Ueda**

61 Analysis of the modified tensile test for interfacial fracture toughness, **Yoshifumi Okajima** (Mitsubishi Heavy Industries)
62 An Spray based synthesis of bio-inspired tough ceramics with high fracture toughness, **Gopal Dwivedi** (stony Brook Univ.)
63 Radiation pattern of acoustic mission signals by rust fracture propagated in an underground storage tank, **Takuma Matsuo** (Meiji Univ.)
64 Simulation of rectangular crack growth under far field tension, **Adbul Hasib** (Nagasaki Univ.)

12:20 – 13:20: Lunch at Simon Center Café (2nd floor)

13:20 – 14:20: Session VII: Fatigue Chair: **J. Trelewicz**

71 Low Cycle fatigue damage under two step variable amplitude loading condition, **Shota Hasunuma** (Aoyama Gakuin Univ.)
72 Influence of thermal fatigue on the connection strength of nanowire surface fastener, **Yuki Toku** (Nagoya Univ.)
73 Effect of mean stress on small fatigue crack growth rate on low carbon steel with several simulated HAZ heat treatment, **Hideaki NIshikawa** (National Institute for Materials Science)

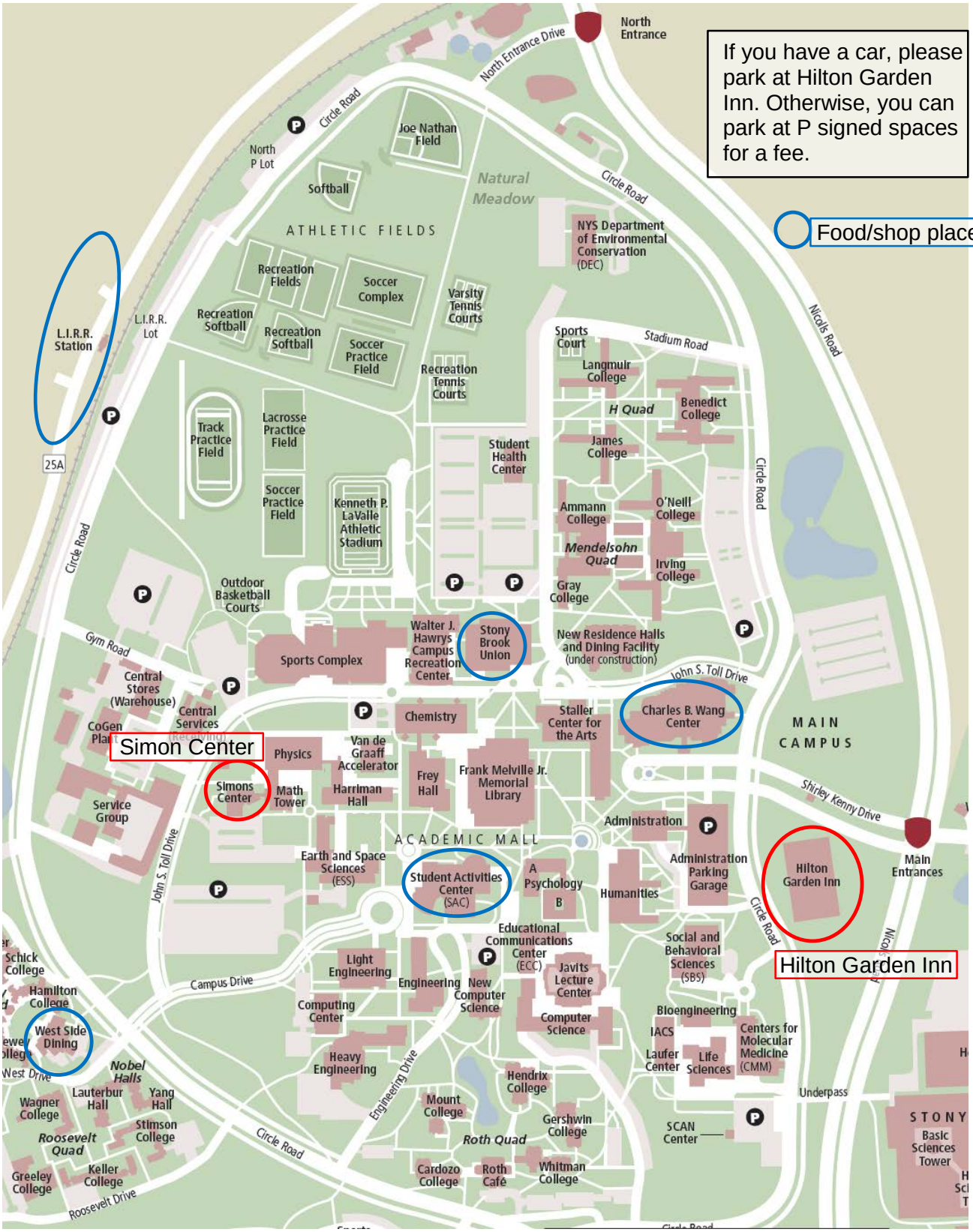
14:20 – 14:50: Special Seminar Chair: **T. Nakamura**

Introduction to Thermal Spray Technology
Sanjay Sampath (Stony Brook Univ.)

14:50 – 15:00: Closing Address

Yoshinobu Shimamura (Shizuoka Univ.), **Toshio Nakamura** (Stony Brook Univ.)

Stony Brook Campus



List of Participants

Chakravarthy	Srinath	Northeastern University
Chen	Shikui	Stony Brook University
Dwivedi	Gopal	Stony Brook University
Goto	Keita	Nagoya University
Hasib	Adbul	Nagasaki University
Hasunuma	Shota	Aoyama Gakuin University
Ichikawa	Yuji	Tohoku University
Ito	Hiroaki	Aoyama Gakuin University
Kesari	Haneesh	Brown University
Kim	Taesung	Waseda University
Kishimoto	Kikuo	Tokyo Institute of Technology
Kishimoto	Yoshinao	Tokyo City University
Kubo	Gai	University of Tsukuba
Kurokawa	Yu	Tokyo Institute of Technology
Lopez-Pamies	Oscar	Universit of Illinois
Matsuda	Tetsuya	University of Tsukuba
Matsuo	Takuma	Meiji University
Nakamura	Toshio	Stony Brook University
Nishikawa	Hideaki	National Institute for Materials Science
Ogawa	Masaru	Yokohama National University
Okajima	Yoshifumi	Mitsubishi Heavy Industries, Ltd.
Ravichandran	Guruswami	California Institute of Technology
Reina-Romo	Celia	University of Pennsylvania
Sampath	Sanjay	Stony Brook University
Shimamura	Yoshinobu	Shizuoka University
Silberstein	Meredith	Cornell University
Suzuki	Yoshiro	Tokyo Institute of Technology
Takahashi	Kosuke	Hokkaido University
Takakuwa	Osamu	Tohoku University
Toku	Yuki	Nagoya University
Trelewicz	Jason	Stony Brook University
Ueda	Masahito	Nihon University
Wang	Lifeng	Stony Brook University
Zhao	Xu	Akita University