# UW-TU:AOS Workshop AOS-Fall 2017 Schedule

**At Petersen's room in Allen Library, University of Washington**

## Nov 15 (W), 2017

2:00-3:30 Poster preparation

3:30-5:30 **Poster Session**

## Nov 16 (Th), 2017

### Thrust-1: Next Generation Airplanes: Computational and Experimental Fluid Dynamics (150 min)

Moderator **Soshi Kawai** (TU)

Opening Remarks (3 min): **Antonino Ferrante** (UW)

8:00-8:25 **Randall J. LeVeque** (UW)
*Finite volume methods with adaptive mesh refinement for wave propagation problems*

8:25-8:50 **Shigeru Obayashi** (TU)
*Optimization and data assimilation for aerospace engineering design*

8:50-9:15 **Antonino Ferrante** (UW)
*Fast DNS of multiphase and wall-bounded turbulent flows*

9:15-9:40 **Soshi Kawai** (TU)
*High-order accurate numerical methods and physical modeling for compressible turbulent flows*

9:40-10:05 **Dana Dabiri** (UW)
*Design & implementation of a 3D-PTV system*

10:05-10:30 **Taku Nonomura** (TU)
*Optical measurement, dynamic wind-tunnel testing and flow control technologies in aerospace engineering*

### Thrust-2: Space, Robotics and International Policy (150 min)

Moderator **Kristi Morgansen** (UW) and **Kazuya Yoshida** (TU)

11:00-11:15 **Kristi Morgansen** (UW) and **Kazuya Yoshida** (TU) *Opening Remarks*

11:15-11:40 **Saadia Pekkanen** (UW)
*International space policy, overview of key issues such as space debris*

11:40-12:00 **Kazuya Yoshida** (TU)
*Space robotics research activities at Tohoku University*

12:00-12:20 **Behcet Acikmee** (UW)
*Autonomous precision guidance and control*

12:20-12:40 **Mitsuhiro Hayashibe** (TU)
*Neuro robotics*

12:40-13:00 **Blake Hannaford** (UW)
*Bio robotics*

13:00-13:20 **Kristi Mogansen** (UW)
*Integrated Sensing and Motion for Agility in Space*

13:20-13:30 **Kristi Morgansen** (UW) and **Kazuya Yoshida** (TU) *Session summary*

## **Thrust-1: Next Generation Airplanes: Composite Materials & Systems** (185 min)

Moderator: **Tomonaga Okabe** (TU)

Opening Remarks (2 min): **Anthony Waas** (UW)

14:30-14:50 **Steven L. Brunton** (UW)
*Predictive Shimming: Advanced Automated Gap Filling with Data Science*

14:50-15:10 **N.Takeda and S. Minauchi** (TU)
*Crack Arresting in CFRP Bonded Joint Structures with Interlocked Fiber Feature*

15:10-15:30 **A. M. Waas,** Lin and Abe (UW)
*Modeling Impact Damage in Laminated Polymer Composites*

15:30-15:50 **Dwayne Arola,** Luiz Bertassoni and Marco Salviato (UW)
*Bioinspired composites for damage tolerance: design and manufacturing of "first-generation" systems*

15:50-16:00 Break

16:00-16:20 **Marco Salviato**, Yang J. and Tuttle M. (UW)
*Characterization and Computational Modeling of the Fracturing Behavior of Discontinuous Fiber Composite Structures*

16:20-16:40 **N. Odagiri** (Toray)
*Toray's Composite Business in US*

16:40-17:00 **Davidson,** A. M. Waas and N. Arai (UW)
*Effects of Defects in AFP Structure Performance*

17:00-17:20 **N. Kishimoto** and T. Okabe (TU)
*An automated calculation of transition states for epoxy resins: Toward GRRM/MC/MD macromolecular dynamics simulation*

17:20-17:35 **A. Shinoda,** R. Matsuzaki (TU)
*Tow-steered composites by curved laminating using AFP technology*

**Nov 17(F), 2017**

## Thrust-4 IFS-Interdisciplinary Research Collaboration (150 min)

Moderator: **Fumio Ohuchi** (UW)

8:00-8:10 Opening Remarks: **Shigeru Obayashi** (TU)

8:10-8:30 **Bruce Hinds** (UW)
*Flow batteries based on membrane/electrodes as a local power source*

8:30-8:50 **Takashi Tokumasu** (TU)
*Large scale molecular dynamics simulations for the transport phenomena of reaction materials in fuel cell*

8:50-9:10 **Christine Luscombe** (UW)
*Polymers and their hybrids for use in organic electronics*

9:10-9:30 **Hidemasa Takana** (TU)
*Fundamental characteristics of ionic liquid electrospray and its application to CO2 absorption technology*

9:30-9:50 **Peter Pauzauskie** (UW)
*Engineering multifunctional optoelectronic point-defects in nanoscale ceramic material*

9:50-10:10 **Atsuki Komiya** (TU)
*Enhancement of CO2 absorption through the understanding of heat and mass transfer mechanism at gas-liquid interface*

10:10-10:30 **Xiasong Li** (UW)
*Computational methods for materials research*

## Thrust-3 Natural Disaster & Hazard

Moderator: **Masahiro Yamaguchi** (TU)

11:00-11:10 Opening Remarks: **Yoichiro Yamada** (Consulate General of Japan)

11:10-11:25 **Marc Eberhard** (UW)
*Overview of UW Natural Hazards Research*

11:25-11:40 **Anna Suzuki** (TU)
*Experimental and numerical studies on fluid motions around fissured rock mass*

11:40-11:55 **Brisa Davis** (UW)
*Adjoint methods for adaptive refinement of tsunami propagation*

11:55-12:10 **Ikkoh Tachibana** (TU)
*Two-scale characterization of seepage flow with micro-scale direct numerical simulation*

12:10-12:25 **Reika Nomura** (TU)
*Multiscale evaluation of disaster mitigation effect of coastal forest.*

12:25-13:30 Lunch

13:30-13:45 **Xinsheng Qin** (UW)
*2D and 3D Modeling of Tsunami Inundation: a Case Study of Seaside, Oregon*

13:45-14:00 **Kenta Sato** (TU)
*The lattice Boltzmann modeling for efficient three-dimensional free surface simulation of tsunami*

14:00-14:15 **Erin Wirth** (UW/USGS)
*3-D Simulations of Magnitude 9 Earthquakes on the Cascadia Megathrust*

14:15-14:30 **Kenjiro Terada** (TU)
*Advanced failure simulations and multiscale strength evaluation method*

14:30-14:50 break

14:50-15:05 **Alex Grant** (UW)
*Earthquake induced landslides in subduction-zone events: insights from the Tohoku, Japan inventory and implications for the Pacific Northwest*

15:05-15:20 **Shuji Moriguchi** (TU)
*Probabilistic approach for disaster-risk evaluation: extensive use of rock fall and tsunami simulations*

15:20-15:35 **David Schmidt** (UW)
*Tsunami and Earthquake Early Warning for the Cascadia Subduction Zone*

15:35-15:50 **Shunichi Koshimura** (TU)
*Real-time tsunami inundation and damage forecasting*

15:50-16:10 break

16:10-16:25 **Fumiyasu Makinoshima** (TU)
*Tsunami evacuation planning by HPC enhanced agent-based simulation*

16:25-16:40 **Krishnendu Shekhar** (UW)
*Evaluation of debris-induced impact forces using MPM simulations and flume experiments*

16:40-16:55 **Steve Kramer** (UW)
*Earthquake-induced soil liquefaction, including duration effects and the potential impact of long-duration and subduction-zone events*

16:55-17:10 **Erick Mas** (TU)
*Agent based models for tsunami evacuation and disaster response simulations*

17:10-17:30 Closing discussion

17:45 Bus departure

**18:30 Reception at Consulate General of Japan Official Residence (in Queen Anne)**

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