

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 **Bale 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)
Experimental Study on Fundamental characteristics of ionic liquid electrospray
- 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

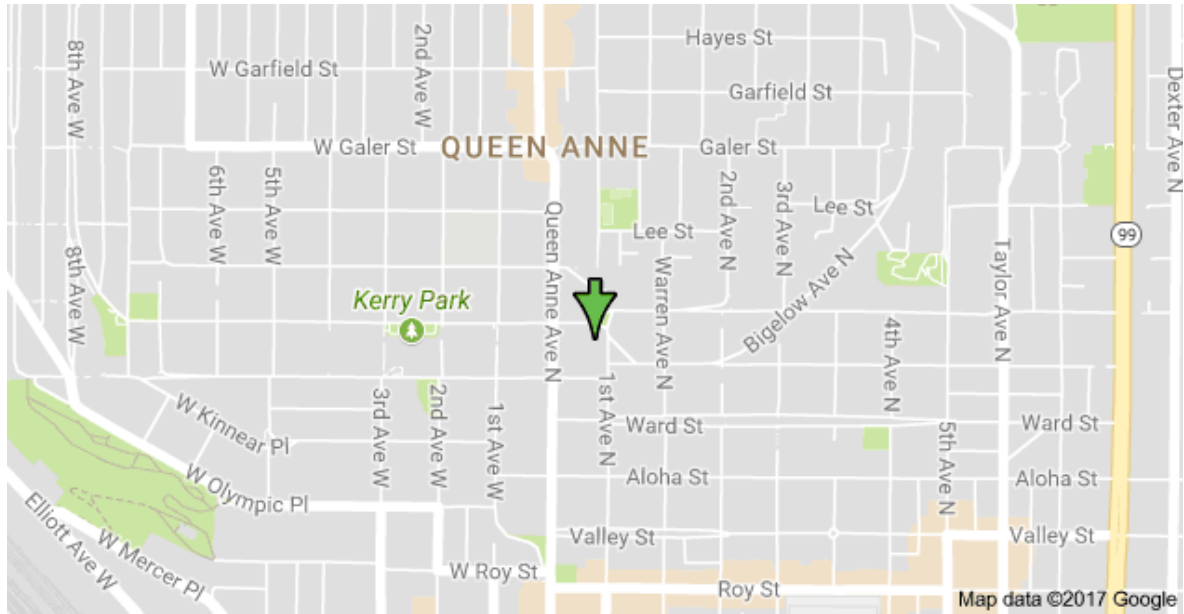
Thrust-3 Natural Disaster & Hazard

- 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)

23 Highland Dr., Seattle, WA 98109



List of Participants

Tohoku University

Department	Title	e-mail address
Aerospace Engineering	Assistant Professor	jingli.tu@gmail.com
Department of Robotics	Professor	hayashibe@tohoku.ac.jp
Aerospace Engineering	Associate Professor	kawai@cfm.mech.tohoku.ac.jp
Department of Chemistry	Associate Professor	kishimoto@m.tohoku.ac.jp
Institute of Fluid Science	Associate Professor	komiya@tohoku.ac.jp
Aerospace Engineering	Dr.	mickael@astro.mech.tohoku.ac.jp
Civil and Environmental Engin.	Professor	koshimura@irides.tohoku.ac.jp
Int. Res. Inst. of Disaster Sci.	Dr.	fumiyasu.makinoshima.r1@dc.tohoku.ac.jp
Mechanical Engin.	Associate Professor	rmatsuzaki@rs.tus.ac.jp
Int. Res. Inst. of Disaster Sci.	Associate Professor	mas@irides.tohoku.ac.jp
Frontier Sci	Associate Professor	minakuchi@smart.k.u-tokyo.ac.jp
Int. Res. Inst. of Disaster Sci.	Associate Professor	s_mori@irides.tohoku.ac.jp
Int. Res. Inst. of Disaster Sci.		reika.nomura.q4@dc.tohoku.ac.jp
Aerospace Engineering	Associate Professor	nonomura@aero.mech.tohoku.ac.jp
Institute of Fluid Science	Professor	obayashi@ifs.tohoku.ac.jp
Aerospace Engineering	Professor	okabe@plum.mech.tohoku.ac.jp
Toray		Nobuyuki.Odagiri@toraycma.com
Toray		Narai@toraytca.com
Toray		Andrew.Koyanagi@toraycma.com

Shinoda, Atsushi	Mechanical Engin.		7513061@ed.tus.ac.jp
Tachibana, Ikkoh	Int. Res. Inst. of Disaster Sci.		ikkoh.tachibana.q3@dc.tohoku.ac.jp
Takana, Hidemasa	Institute of Fluid Science	Associate Professor	takana@paris.ifs.tohoku.ac.jp
Takeda, Nobuo	Frontier Sci.	Professor	takeda@smart.k.u-tokyo.ac.jp
Terada, Kenjiro	Int. Res. Inst. of Disaster Sci.	Professor	tei@irides.tohoku.ac.jp
Tokumasu, Takashi	Institute of Fluid Science	Professor	tokumasu@ifs.tohoku.ac.jp
Sato, Kenta	Int. Res. Inst. of Disaster Sci.		kenta.sato.t7@dc.tohoku.ac.jp
Suzuki, Anna	Institute of Fluid Science	Assistant Professor	anna.suzuki@tohoku.ac.jp
Yamaguchi, Masahiro	Department of Physics	Professor	masahiro.yamaguchi.b6@tohoku.ac.jp
Yoshida, Kazuya	Aerospace Engineering	Professor	yoshida@astro.mech.tohoku.ac.jp

University of Washington	Department	Title	e-mail address
Arola, Dwayne	Materials Sci. & Eng.	Associate Professor	darola@uw.edu
Brunton, Steven	Mechanical Engin.	Assistant Professor	sbrunton@uw.edu
Dabiri, Dana Davidson	Aeronautics and Astronautics Engin.	Associate Professor	dabiri@uw.edu
Davis, Brisa	Applied Mathematics	Graduate Student	bndavis@uw.edu
Eberhard, Marc	Civil and Environmental Engin.	Professor	eberhard@uw.edu
Ferrante, Antonino	Aeronautics and Astronautics Engin.	Associate Professor	aferrant@uw.edu
Grant, Alex	Civil and Environmental Engin.	Graduate Student	alexrrgrant@gmail.com
Gonzalez, Frank	Earth and Space Sciences	Affiliate Professor	figonzal@uw.edu
Hinds, Bruce	Materials Sci. & Eng.	Professor	bjhinds@uw.edu
Kramer, Steve	Civil and Environmental Engin.	Professor	kramer@uw.edu
Li, Xiasong	Chemistry	Professor	xsli@uw.edu
LeVeque, Randall J.	Applied Mathematics	Professor	rjl@uw.edu
Lowes, Laura	Civil and Environmental Engin.	Chair and Professor	lowes@uw.edu
Luscombe, Christine	Materials Sci. & Eng.	Professor	luscombe@uw.edu
Morgansen, Kristi	Aeronautics and Astronautics Engin.	Professor	morgansn@uw.edu
Ohuchi, Fumio	Materials Sci. & Eng.	Professor	ohuchi@uw.edu
Pauzauskie, Peter	Materials Sci. & Eng.	Associate Professor	peterpz@uw.edu
Pekkanen, Saadia	International Studies	Professor	smp1@uw.edu
Qin, Xinsheng (Shawn)	Civil and Environmental Engin.	Graduate Student	xsqin@uw.edu
Salviato, Marco	Aeronautics and Astronautics Engin.	Assistant Professor	salviato@uw.edu
Shekhar, Krishnendu	Civil and Environmental Engin.	Graduate Student	kshekhar@uw.edu
Schmidt, David	Earth and Space Sciences	Assoc. Professor	dasc@uw.edu
Waas, Anthony	Aeronautics and Astronautics Engin.	Professor	awaas@aa.washington.edu
Wirth, Erin	United States Geological Survey		