

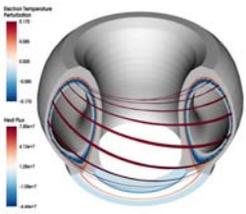
# BOUT++2018 Workshop Agenda

August 14-17, 2018

LLNL Livermore Valley Open Campus (LVOC) at High Performance Computing Innovation Center (HPCIC)  
Livermore, CA • HPCIC • Trailer 6475 • Telephone (925) 422-9173

*Tuesday*, August 14, 2018

Day 1- Welcome and BOUT++ Overview		
7:30 AM	Shuttle bus departs (Best Western Vineyard guest only)	
7:50 AM	Arrive at LVOC ( <i>refer to workshop website for directions, in necessary</i> ) BOUT++ Workshop- badging, wireless accounts setup and morning hospitality	All
8:40 AM	Welcome	Pat Falcone/Jim Trebes, LLNL
8:50 AM	Administrative discussion	Xueqiao Xu, LLNL
Day 1 - SESSION 1 Overview and Introduction- Phil Snyder, Chair		
9:00 AM	Latest developments in BOUT++ boundary plasma turbulent transport simulations	Xueqiao Xu, LLNL
9:45 AM	<b>Break</b>	All
Day 1 - SESSION 2 Code and Physics overview- Xianzhu Tang, Chair		
10:00 AM	Overview of the BOUT++ Code Structure	Ben Dudson/U York
10:50 AM	Physics problems in long pulse steady state tokamaks, EAST, CFETR and ITER	Baonian Wan, ASIPP
11:40 AM	<b>Group photos</b>	
12:00 PM	<b>Lunch</b>	
Day 1 - SESSION 3 BOUT++ Exercises/UQ/ELMs- Maxim Umansky, Chair		
2:00 PM	Demonstration of integration of BOUT++ into the OMFIT framework	Theresa Wilks, MIT
3:00 PM	<b>Break – Collect \$10 for Friday Luncheon</b>	All
3:30 PM	OMFIT tutorial: introduction and kinetic EFIT (remote demo)	Orso Meneghini, GA
4:30 PM	High Performance Computing Resources at NERSC	Brian Friesen, NERSC
5:20 PM	ELM crash with nonlinear toroidally axisymmetric flow and field	Haruki Seto, QST/Japan
5:50 PM	<b>Adjourn Day 1</b>	Shuttle bus departs (Best Western Vineyard guest only)



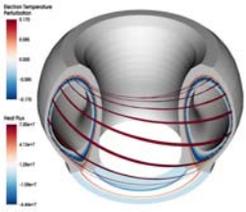
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*Wednesday*, August 15, 2018

Day 2 - Solvers		
7:30 AM	Shuttle bus departs (Best Western Vineyard guest only)	
7:50 AM	Arrival at LVOC at HPCIC ( <i>refer to workshop location/map on website</i> ) BOUT++ Workshop Badging ( <i>if you did not attend Day 1</i> ) morning hospitality	All
Day 2 - SESSION 1 Solvers and Numerical Schemes- Luis Chacon, Chair		
8:00 AM	Overview of the Modular Finite Element Method (MFEM) framework	Kolev, Tzanio, LLNL
8:45 AM	The SUNDIALS Suite of Time Integrators and Nonlinear Solvers	David Gardner, LLNL
9:30 AM	<b>Break- Collect \$10 for Friday Luncheon</b>	All
Day 2 - SESSION 2 Solvers and Numerical Schemes (continued)- Alex Friedman, Chair		
9:45 AM	Scalable PDE solvers for plasma simulation	Luis Chacon, LANL
10:30 AM	Progress in Scalable Solution of Implicit FE Continuum Plasma Physics Models	John Shadid, SNL
11:00 AM	BOUT++ Performance and Scaling	Ben Dudson, U. of York
11:30 AM	Discussion for all morning sessions	All
12:00 PM	<b>Lunch</b>	All
Day 2 - SESSION 3 BOUT++ Exercises/Poster I- Gao Xiang, Chair		
2:00 PM	BOUT++ transport, MHD Equilibria	Nami Li, DLUT/LLNL
3:00 PM	<b>Break</b>	
3:30 PM	Six-Field Two-Fluid Simulations	Tianyang Xia, ASIPP
4:30 PM	Poster Session I	All
5:50 PM	<b>Adjourn Day 2</b>	
6:15 PM	<b>No Host Dinner (optional)- TBD</b>	All
8:30 PM	<b>After dinner</b>	Shuttle bus departs (Best Western Vineyard guest only)



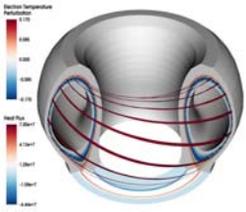
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*Thursday*, August 16, 2018

Day 3 - Boundary Physics and PMI		
7:30 AM	Shuttle bus departs (Best Western Vineyard guest only)	
7:50 AM	Arrival at LVOC at HPCIC ( <i>refer to workshop location/map on website</i> ) BOUT++ Workshop Badging ( <i>if you did not attend Day 1 or 2</i> ) and morning hospitality	All
Day 3 - SESSION 1 Boundary Physics Integration- Tom Rognlien, Chair		
8:00 AM	Physics of The Pedestal, and Integration with Core and Boundary	Phil Snyder, GA
8:45 AM	Basic Physics of the first wall	Roman Smirnov, UCSD
9:30 AM	<b>Break</b>	
Day 3 - SESSION 2 RF-SciDac- Ilon Joseph, Chair		
9:45 AM	Nonlinear ICRF interactions with the boundary plasma	Jim Myra, LRC
10:30 AM	Implementation in BOUT++ and Testing of a Model for Scrape-off-Layer Turbulence and RF Effects	Andris Dimits, LLNL
11:00 AM	Coupling of VSim RF code with BOUT++ in RF SciDac-4	David Simthe, Tech-X
11:30 AM	Discussions for all morning sessions	
12:00 PM	<b>Lunch</b>	All
Day 3 - SESSION 3 BOUT++ Exercises/Turbulence/Poster Session II Data analysis- Tianyang Xia, Chair		
2:00 PM	Hermes & SD1D	Ben Dudson, Uni of York
3:00 PM	<b>Break</b>	
3:30 PM	Gyro-Landau-Fluid simulations	Ben Zhu, LLNL
4:30 PM	Poster Session II	All
5:50 PM	<b>Adjourn Day 3</b>	Shuttle bus departs (Best Western Vineyard guest only)



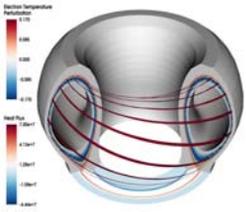
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*Friday*, August 17, 2018

Day 4 – Tokamak Disruptions and New Simulation Framework		
7:30 AM	Shuttle bus departs (Best Western Vineyard guest only)	
7:50 AM	Arrival at LVOC at HPCIC ( <i>refer to workshop location/map on website</i> ) BOUT++ Workshop Badging ( <i>if you did not Attend Day 1, 2 or 3</i> ) morning hospitality	All
Day 4 - SESSION 1 Tokamak Disruptions- Xueqiao Xu, Chair		
8:00 AM	Tokamak Disruptions	Allen Boozer, Columbia U
8:45 AM	Tokamak Disruption Simulations	Xianzhu Tang, LANL
9:30 AM	Coffee Break	
Day 4 - SESSION 2 New Simulation Framework- Andris Dimits, Chair		
9:45 AM	Contemporary machine learning: techniques for practitioners in the physical sciences	Brian Spears, LLNL
10:30 AM	Overview of Forward and Inverse Uncertainty Quantification Methods	Tim Wildey, SNL
11:15 AM	Progress in simulating scrape-off layer plasma dynamics with STORM	Fabio Riva, Culham/UK
11:45 AM	Prediction of Divertor Heat Flux width on ITER and CFETR Using BOUT++	Zeyu Li/PKU
12:15 PM	<b>Onsite Lunch- Baja Fresh Mexican Grill</b>	All
Day 4 - SESSION 3 BOUT++ Exercises and Physics Models & RMP- Ben Zhu, Chair		
1:15 PM	Using VisIt to Visualize BOUT++ data	Eric Brugger, LLNL
2:15 PM	<b>Break</b>	
2:30 PM	Collisional Landau Fluid Physics Models	Ilon Joseph, LLNL
3:00 PM	Edge Pedestal Collapse Simulations with Resonant Magnetic Perturbations	Juhyung Kim NFRI/Korea
3:30 PM	Discussions for all sessions	all
4:00 PM	<b>Adjourn Final Day</b>	Shuttle bus departs (Best Western Vineyard guest only)



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*Wednesday*, August 15, 2018 • **POSTER SESSION I – Turbulence & ELMs**

Poster #	Title	Primary Author
Poster 1	Study of high $\beta_N$ plasmas on EAST tokamak	Xiang Gao/ASIPP
Poster 2	A Landau Fluid closure for Arbitrary Frequency and its implementation in numerical code	Libo Wang/PKU
Poster 3	Quasi-coherent mode simulation during inter-ELM period in HL-2A	Tengfei Tang/DLUT
Poster 4	ELM crash with nonlinear toroidally axisymmetric flow and field	Haruki SETO/QST
Poster 5	The RF sheath boundary condition in BOUT++ simulation	Bin Gui/ASIPP
Poster 6	Flux driven GDB model for tokamak edge turbulence study	Ben Zhu/LLNL
Poster 7	Simulation of the Lithium pellet injection in a divertor geometry using the BOUT++ transport code	Yumin Wang/ASIPP
Poster 8	Exploring ELM-free and ELM suppressed operation for CFETR	Yiren Zhu/HUST
Poster 9	Simulation of divertor heat flux widths on EAST by BOUT++ transport code	Guozhong Deng/LLNL
Poster 10	Coupling a transport solver to global turbulence simulations	Jeff Parker / LLNL

*Thursday*, August 16, 2018 • **POSTER SESSION II - PMI**

Poster #	Title	Primary Author
Poster 1	Long-legged divertors for confronting tokamak PMI challenges	M.V. Umansky/LLNL
Poster 2	Linear Analyses of Peeling-ballooning Modes in High-beta Pedestal Plasmas	C. K. Sun/PKU
Poster 3	Impurity migration pattern simulated by test particle module under BOUT++ framework	Xiaotao Xiao/ASIPP
Poster 4	Implementation in BOUT++ and Testing of a 3D Extension of the SOLT Model for Coupled Simulations of Scrap-eoff-Layer Turbulence and RF Effects	Andris Dimits, LLNL
Poster 5	Simulations of divertor heat flux width using BOUT++ transport code with drifts	Nami Li/LLNL
Poster 6	Dynamics fuel recycling in Tokamak: effects of material surface processes on dynamics wall outgassing	Jerome Guterl/GA
Poster 7	Divertor particle and heat fluxes simulation during ELM in H-mode discharge on HL-2A tokamak	Xiaoxue He/DLUT
Poster 8	Prediction of Divertor Heat Flux width on ITER and CFETR Using BOUT++	Zeyu Li/PKU
Poster 9	Numerical simulation of lithium granule injection on tokamak edge plasma	Fang Gao/DLUT
Poster 10	Possible Inversion of the Sheath Potential Under Strong Thermionic Emission from Tungsten Divertor Plates	Michael Campanell /LLNL