

BOUT++2023 Workshop Agenda

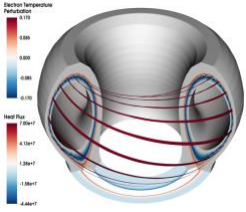
January 9-11, 2023

Hertz Hall, University of California Livermore Collaboration Center, Eastgate Drive,
Livermore, CA •Conference Room Point Reyes

Time zone for remote presenters: Blue for UK/EU, Red for Korea/China, and Green for USA.

Monday, January 9, 2023

Day 1- Welcome and BOUT++ Overview		
8:00 AM	Arrive at Hertz Hall (<i>refer to workshop website for directions, in necessary</i>) BOUT++ Workshop- badging, wireless accounts setup and morning hospitality	All
8:45 AM	Welcome	William Evans/Harry Mclean, LLNL
8:55 AM	Administrative discussion	Xueqiao Xu, LLNL
Day 1 - SESSION 1 Overview and Introduction- Xueqiao Xu, Chair		
9:00 AM	Latest developments in BOUT++ boundary plasma turbulent transport simulations	Xueqiao Xu, LLNL
9:30 AM	Diagnosing turbulence in the Tokamak divertor using STORM	Nick Walkden, FN (Remote, UK)
10:00 AM	Break/group photos	All
10:30 AM	Overview of the BOUT++ Code Structure	Ben Dudson, LLNL
11:30 AM	Tokamak disruption simulation and application of BOUT++	Xianzhu Tang, LANL
12:00 PM	Lunch	
Day 1 - SESSION 2 Code Development & Applications - Xianzhu Tang, Chair		
2:00 PM	A BOUT++ Extension For Full Annular Tokamak Edge MHD And Turbulence Simulations	Seto Haruki, QST
2:30 PM	Small ELM dynamics and its impact on the SOL width scaling	Nami Li, LLNL
3:00 PM	Linear simulation of kinetic Peeling-Ballooning mode with bootstrap current under the BOUT++ Gyro-Landau-fluid code	Pengfei Li, PKU (Remote, China)
3:30 PM	Break	All
4:00 PM	Global gyrofluid simulations of turbulence in tokamak plasmas	Sehoon Ko, KFE (Remote, Korea)
4:30 PM	The progress of the model development on ELM control with RMP and RF waves in ASIPP	Tianyang Xia, ASIPP (Remote, China)
5:00 PM	Discussions	
5:30 PM	Adjourn Day 1	



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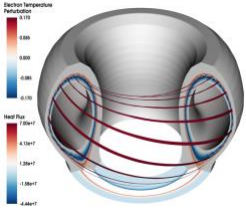
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Tuesday, January 10, 2023

Day 2 - Solvers		
8:30 AM	Arrival at Hertz Hall (<i>refer to workshop website for directions, in necessary</i>) BOUT++ Workshop Badging (<i>if you did not attend Day 1</i>) morning hospitality	All
Day 2 - SESSION 1		
AI/ML methods and SOL Broadening – Ben Dudson, Chair		
9:00 AM	StyleGAN as an AI Deconvolution Operator for Large Eddy Simulations of Turbulent Plasma Equations in BOUT++	Jony Castagna, UKRI-STFC
9:30 AM	SIMLInt --- Simulation and Machine Learning Integration	Moritz Linkmann, Univ. of Edingburgh (Remote, UK)
10:00 AM	Autonomous Multiscale Simulations	Peer-Timo Bremer, LLNL
10:30 AM	Break	
11:00 AM	BOUT++ electromagnetic turbulence simulations of edge plasma dynamics during thermal quench	Ben Zhu, LLNL
11:30 AM	Physics of Turbulence Spreading and SOL Broadening	Patrick Diamond, UCSD (Remote, USA)
12:00 PM	Lunch	All
Day 2 - SESSION 2		
ITER and Fusion Pilot Plant - Phil Snyder, Chair		
2:00 PM	Characterization of Turbulence and Transport in a Tokamak Power Plant	Chris Holland, UCSD (Remote, USA)
2:30 PM	Core-Edge Integration with Radiative Scenarios	Livia Casali, UTK (Maybe remote, USA)
3:00 PM	Identification of multi-scale MHD and turbulence and their role in setting the diverter heat flux width in wide-pedestal quiescent H-mode	Zeyu Li, GA (Remote, USA)
3:30 PM	Break	
4:00 PM	Divertor Modelling for SPARC	Thomas Body, CFS
4:30 PM	Discussions	
5:30 PM	No Host Dinner (optional)- TBD	All
7:30 PM	After dinner	



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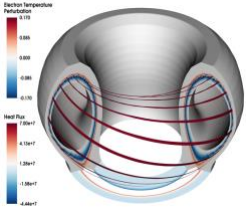
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Wednesday, January 11, 2023

Day 3 - Boundary Physics and PMI		
8:30 AM	Arrival at Hertz Hall (<i>refer to workshop website for directions, in necessary</i>) BOUT++ Workshop Badging (<i>if you did not attend Day 1 or 2</i>) and morning hospitality	All
Day 3 - SESSION 1 New capabilities: 3D geometry, neutrals, transport – Ben Zhu, Chair		
9:00 AM	BOUT++ for stellarator applications	Brendan Shanahan, MPIPP (Remote, Germany)
9:30 AM	Overview over the edge fluid turbulence code GRILLIX	Andreas Stegmeir, MPIPP (Remote, Germany)
10:00 AM	The effect of divertor particle sources on scrape-off-layer turbulence	Qian Xia, UKAEA (Remote, UK)
10:30 AM	Break	All
11:00 AM	Investigation of plasma turbulence in tokamak divertor and its implications for plasma-material interactions	Maxim Umansky, LLNL
11:30 AM	Effects of neutral transport on plasma scrape-off layer turbulence in gyrokinetic simulations	Tess Bernard, GA
12:00 PM	Lunch	All
Day 3 - SESSION 2 Code Coupling and Pedestal-SOL integration - Maxim Umansky, Chair		
2:00 PM	Modeling RF-induced ponderomotive effects on edge/SOL transport	Tom Jenkins, Tech-X
2:30 PM	Simulation of plasma transport in linear plasma device MPS-LD by using BOUT++	Yue Wang, DLUT (Remote, China)
3:00 PM	Development of the turbulence-transport coupling simulation framework for the edge plasma	TianYuan Liu, USTC (Remote, China)
3:30 PM	Break	
4:00 PM	Using Coupled Pedestal and Boundary Physics to Close the Integrated Tokamak Performance and Exhaust (ITEP) Gap	Philip Snyder, ORNL
4:30 PM	Discussion	All
5:00 PM	Adjourn Day 3	



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Thursday, January 12, 2023

Day 4 – Informal Working Group Sessions		
Day 4 - SESSION 1 BOUT++ Tutorial – Ben Dudson, Chair		
9:00 AM	Hypnotoad	John Omotani, UKAEA (Remote, UK)
9:30 AM	Lessons for plasma software from the climate data analytics community	Tom Nicholas, Columbia Univ. (Remote, USA)
10:00 AM	Progress toward a Python interface for DEGAS2	George Wilkie, PPPL (Remote, USA)
12:00 PM	Lunch	All
Day 4 - SESSION 2 Individual Group Presentations – Nami Li, Chair		
3:00 PM	Online individual group presentations with BOUT++ experts (in purple)	All
	The linear simulation of the plasma response of the RMP in BOUT++ framework https://lnl.fed.webex.com/meet/zhu12	Bin Gui, ASIPP, Ben Zhu
	Plasma elongation effect on the parity change in electromagnetic ITG modes and the generation of intrinsic rotation in the tokamak plasmas, Theory of drift Alfvén wave instability and micro-tearing mode https://lnl.fed.webex.com/meet/dudson2	Helen Kaang, KFE, Zeyu Li, Tianyang Xia
	USTC: Simulation study of the evolution of toroidally symmetric parallel current during ELM burst based on BOUT++	Kaixuan, Fan, PKU, Ben Dudson
	The simulation of ELMs suppression by ion cyclotron resonance heating in EAST using BOUT++ https://lnl.fed.webex.com/meet/li55	Taihao Huang, USTC, Seto Haruki
		Yanlong Li, ASIPP, Nami Li, Maxim Umansky
5:00 PM	Adjourn Final Day	