29th Workshop on MHD Stability Control					
ID	**Start**	**End**	**Wednesday 7/23**	**Thursday 7/24**	**Friday 7/25**
Morning #1	8:30	10:00	TSD Workshop	Yokoyama Lunia Gan Ren	Logan Chiriboga N. Wang Igochine
Coffee #1	10:00	10:30			
Morning #2	10:30	12:00		Waybright Phar Brennan Farre Kaga	Liu Park Takemura Power
Lunch	12:00	13:30			
Afternoon #1	13:30	15:00	Pigatto Sanpei Shinichiro Matsuyama	Poster / Group Photo	Boozer Furukawa Hartigan Burgess
Coffee #2	15:00	15:30			
Afternoon #2	15:30	17:00	Kim Chandra W. Wang Leuthold		Tobin Kumar Lee Riquezes
Venue			Computer Science Building Room 105		

Princeton, New Jersey: July 23-25, 2025

Invited talks	22 minutes	Uninterrupted
Contributed talks	14 minutes	Uninterrupted
Discussions	26 minutes	On all previous talks, including clarifying questions
Lunch	90 minutes	Restaurants nearby

Session title	**Talk title**			**Chair**	**Assistant chair**
Experiments A	**13:30**	**15:00**	**Wednesday**	**Yang**	**Tomasina**
Pigatto	Plasma response models for RFX-mod2 operations with magnetic perturbations				
Sanpei	Correlation between sawteeth event and hollow SXR emissivity distribution in a low aspect ratio RFP				
Shinichiro	Dynamics of Energetic-Particle-Driven Density Fluctuations in Heliotron J via Two-Dimensional Beam Emission Spectroscopy				
Matsuyama	Plasmoid dynamics and magnetic disturbances after pellet injection in LHD				
Innovation	**15:30**	**17:00**	**Wednesday**	**Levesque**	**Li**
Kim	A new dynamo theory based on Statistical State Dynamics				
Chandra	Synthetic diagnostic integration for automatic MHD mode labeling on SPARC				
W. Wang	Linear and nonlinear simulations of internal kink modes and associated energetic particle transport in SPARC using the M3D-C1 code				
Leuthold	MHD physics basis for ARC				

Session title	**Talk title**			**Chair**	**Assistant chair**
Experiments B	**8:30**	**10:00**	**Thursday**	**Logan**	**Leuthold**
Yokoyama	Achieved milestones and disruption studies in the initial operation of JT-60SA				
Lunia	Toroidal mode number dependence of RMP ELM suppression in DIII-D				
Gan	MHD-Induced SOL filaments and divertor heat flux striations in NSTX				
Ren	Measurement of the mode structures during locked mode disruptions on J-TEXT				
Theory A	**10:30**	**12:00**	**Thursday**	**Paz-Soldan**	**Tobin**
Waybright	Extended drift MHD theory of resonant layer responses to non-axisymmetric magnetic perturbations				
Phar	Quantifying the resonant drive for magnetic islands in perturbed ideal, resistive, and kinetic MHD				
Brennan	Calculating the probability of locking to an error field for a saturated magnetic island surrounded by a resistive wall				
Farre Kaga	Interpreting AI for fusion: An application to plasma profile analysis for tearing mode stability				

Session title	Poster title				
Poster	**13:30**	**17:00**	**Thursday**		
Arnold	Simulations of sawtoothing activity with a resistive wall in the HBT-EP tokamak				
Benjamin	Towards calculation of minimum marginally stable island widths in a cross-machine tearing mode				
Butt	Prediction and control of breakthrough ELMs in wide-pedestal QH mode				
Elster	Equilibrium two-fluid effects on linear tearing mode stability				
Halpern	Determining the validity of tokamak perturbed equilibrium modeling using nonlinear equilibria				
Lee	Kinetic stability of negative-triangularity plasmas				
Rothstein	Assessing numerical stability of physics models to equilibrium variation through database				
Sheehan	Multi-machine analysis of impurity radiative collapse disruption prediction and event chain				
Tillinghast	Automatic determination of magnetic island widths in DECAF and implicit analysis of the modified Rutherford equation				
Tomasina	Modeling RMPs impact on L-H power threshold in JT-60SA OP2 scenarios				
Wong	Reduced fast ion transport calculations of infernal-like fishbone instabilities in MAST-U				
Yang	Technology readiness assessment of magnetohydrodynamic stability control				
Session title	**Talk title**			**Chair**	**Assistant chair**
Experiments C	**8:30**	**10:00**	**Friday**	**Matsuyama**	**Schwartz**
Logan	Resonant magnetic perturbation thresholds for ELM suppression				
Chiriboga	High speed plasma feedback system of n=1 MHD instabilities on HBT-EP using machine learning to couple optical diagnostics and magnetic control				
N. Wang	Trigger and enhancement of ITB by 3D MP and MHD modes on J-TEXT				
Igochine	Plasma effect on error fields correction at high βN in ASDEX Upgrade				
Simulations	**10:30**	**12:00**	**Friday**	**Bandyopadhyay**	**Artola**
Liu	Kinetic-MHD simulation of Alfvenic and pressure-driven instabilities in stellarators using M3D-C1				
Park	Quasi-symmetric optimization of 3D magnetic perturbations				
Takemura	Modeling the hysteresis in the amplitude–frequency relationship of MHD instabilities in toroidal magnetically confined plasmas				
Power	Simulations of the “churning mode” in snowflake divertors using reduced-MHD models				
Theory B	**13:30**	**15:00**	**Friday**	**Pigatto**	**Waybright**
Boozer	Magnetic field line chaos and MHD in toroidal plasmas				
Furukawa	Equilibrium analysis of single-helicity, incompressible MHD				
Hartigan	Effects of a two-fluid model on RF current condensation				
Burgess	Tearing stability prediction combining toroidal calculations with a two-fluid slab layer approximation				
Forecasting	**15:30**	**17:00**	**Friday**	**Sabbagh**	**Yokoyama**
Tobin	Real-time observation of toroidal current redistributions induced by three-dimensional MHD phenomena triggering vertical displacement events for disruption avoidance				
Kumar	Physics-guided deep learning surrogate for real-time control of vertical stability in tokamak plasmas				
Lee	Development of a neural network algorithm for classifying NTM formation in KSTAR ECEI data for Disruption Event Characterization and Forecasting (DECAF)				
Riquezes	Rotating MHD mode lock and disruption forecaster with real-time feedback on KSTAR				