

Workshop III: Fusion Device Design and Engineering

Monday May 4, 2026

- 8:00 *Session Chair AM: Elizabeth Paul*
- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Cami Collins** (Oak Ridge National Laboratory)
Multi-Fidelity Integrated Modeling for Fusion Device Design with FREDAs: From Workflows to Reliable Predictions
- 10:00–10:15 *Break*
- 10:15–11:05 **Antoine Cerfon** (Type One Energy)
Design and Validation of the Infinity Two Stellarator
- 11:15–11:30 *Break*
- 11:30–12:20 **Anouk Nicolopoulos-Salle** (Renaissance Fusion)
Engraved coils on simple surfaces: a new architecture for Stellarator design
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Session Chair PM: Cami Collins*
- 2:30–3:20 **Tim Slendebroek** (University of California, San Diego (UCSD))
Exploring the fusion power plant design space: from tokamak optimization to million-case ITER studies
- 3:30–3:45 *Lightning Poster Round*
- 3:45–5:00 *Poster Session & Reception (Hosted by IPAM)*

Tuesday May 5, 2026

- 8:00 *Session Chair AM: Antoine Cerfon*
- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Takeo Hoshi** (National Institute for Fusion)
General data-analysis framework ODAT-SE and its applications
- 10:00–10:15 *Break*
- 10:15–11:05 **Yong-Su Na** (Seoul National University)
Fusion Reactor Core Design Revisited: Historical DEMO and Power Plant Studies, Design Methodologies, and Operation Scenarios
- 11:15–11:30 *Break*

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- 11:30–12:20 **Thomas Kruger** (Thea Energy)
Optimization of the Planar Coil Stellarator
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Session Chair PM: Lise-Marie Imbert-Gerard*
- 2:30–3:20 **Alan Kaptanoglu** (New York University)
Recent work on stage-1 and stage-2 stellarator optimization
- 3:30–4:00 *Break*
- 4:00–4:50 *Discussion*

Wednesday May 6, 2026

- 8:00 *Session Chair AM: Takeo Hoshi*
- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Archis Joglekar** (Pasteur Labs)
Differentiable, Multi-Fidelity Simulation for Integrated Inertial Fusion Energy Design
- 10:00–10:15 *Break*
- 10:15–11:05 **Pablo Rodriguez-Fernandez** (Massachusetts Institute of Technology)
Designing tokamak core plasmas: from scaling laws to first-principles simulations
- 11:15–11:30 *Break*
- 11:30–12:20 **Georg Stadler** (New York University)
Towards single stage optimization for omnigeneity
- 12:20–12:30 *Group Photo*
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Session Chair PM: Archis Joglekar*
- 2:30–3:20 **Hong Qin** (Princeton University)
Machine Learning of Local Confinement and Transport from the International Multi-Tokamak Confinement Profile Database
- 3:30–4:00 *Break*
- 4:00–4:50 *Discussion*

Thursday May 7, 2026

- 8:00 *Session Chair AM: Thomas Kruger*
- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Lin Yang** (Idaho National Laboratory)
Multiscale and Multiphysics Modeling in Fusion Energy Systems Using Open-Source MOOSE-Based Tools: TMAP8 and SALAMANDER
- 10:00–10:15 *Break*
- 10:15–11:05 **Egemen Kolemen** (Princeton Plasma Physics Lab)
N/A
- 11:15–11:30 *Break*
- 11:30–12:20 **Matthew Landreman** (University of Maryland)
Opportunities for multi-fidelity methods in fusion device design
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Session Chair PM: Alan Kaptanoglu*
- 2:30–3:20 **Michael Churchill** (Princeton Plasma Physics Lab)
Using AI to accelerate fusion energy device design and operational excellence
- 3:30–4:00 *Break*
- 4:00–4:45 **Benjamin Peherstorfer** (Courant Institute of Mathematical Sciences)
Two-Parameter Flows for Learning Population Dynamics

Friday May 8, 2026

- 8:00 *Session Chair AM: Lise-Marie Imbert-Gerard*
- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Jon Hillesheim** (Commonwealth Fusion Systems)
Plasma physics basis for ARC design and operation
- 10:00–10:15 *Break*
- 10:15–11:05 **James Cook** (UK Atomic Energy Authority)
Parametric Tokamak Design in BLUEMIRA
- 11:15–11:30 *Break*
- 11:30–12:20 **Syunichi Shiraiwa** (Princeton University)
N/A

