PRINCETON UNIVERSITY

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To whom it may concern,

It is with great pleasure that we acknowledge the valuable contribution of Mr. Swapnil Kumar, who delivered a presentation at the Princeton Plasma Physics Laboratory (PPPL) School on Plasmas for Microelectronics and Quantum Information Science, held at Princeton University and the Princeton Plasma Physics Lab.

In his talk, entitled "Quantifying Uncertainty in Quantum Machine Learning & Fluid Mechanics" Swapnil addressed the growing importance of uncertainty quantification (UQ) in the development and deployment of both quantum and classical machine learning models. Key topics covered included:

- Uncertainty Quantification for Multi-fidelity Simulations and Quantum Machine Learning for quantifying uncertainty in fluid mechanics
- Surrogate modelling (Multi-fidelity Deep Neural Network) and co-kriging techniques to enhance computational efficiency in simulation-based studies
- Integration of UQ principles for microelectronics design using Metal Additive Manufacturing and predictive plasma modelling
- Microfluidics based Coaxial 3D Bioprinting and application of Quantum Machine learning in fluid mechanics for development of optimal structures
- Evaluation of Process Simulation for Metal Additive Manufacturing for the design of microelectronics and application of Quantum Machine learning in additive manufacturing

We thank Swapnil for this outstanding contribution and for helping to advance the mission of this PPPL Summer School in promoting cross-cutting scientific exchange and innovation.

Sincerely,

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