

# Plasma Physics Seminar

Location: BaPSF Auditorium (Rehab Building Room 15-70)  
Monday, April 29, 2019  
2:30PM

## Opportunities and Challenges of Plasma Waves for Magnetic Fusion

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Plasma waves are widely investigated since the time of Alfvén in 1940's in laboratory, space, and fusion plasmas. For magnetic fusion research, the plasma waves represent one of a few means to transmit energy across strong magnetic fields. Plasma waves (or simply called "RF") are therefore being used to heat plasmas to fusion temperatures and also to drive plasma currents. They are also known to play important roles for example in the energetic particles and plasma disruption physics. For the high density-high temperature, steady-state magnetic fusion reactor systems, with intense tritium, neutron, and x-ray environment, the RF-based heating and current drive systems are viewed as much more technically feasible compared to a neutral-beam-based system. While considerable advances were made over decades of experimental and theoretical RF physics investigations, there are still many RF-based issues to be resolved if RF were to be employed for magnetic fusion reactors. However, the recent advances in rf-related technology, theory/modeling, and diagnostics give us some level of optimism and confidence for a timely resolution of these complex RF issues.