# Session 26

## Machine learning for understanding earthquake physics

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This session will focus on the use of Machine Learning (ML) to improve understanding of the physics of earthquakes. We solicit abstracts from all areas of seismology using ML to illuminate earthquake processes at all length scales. We invite in particular works that illuminate the physics behind and transferability to Earth of recent studies showing that acoustic emissions can be used to predict characteristics of laboratory earthquakes and identify precursors to labquakes. These studies show that ML methods can predict fault zone shear stress, labquake stress drop, time-to-failure and other aspects of lab earthquake failure.

Our aim is to bring together ML-based works on a broad range of issues in seismology including: 1) the physics of earthquake nucleation and rupture, 2) the mechanisms that make it possible to predict lab earthquakes using ML, 3) the physical processes responsible for precursors to natural and lab earthquakes, and 4) the range of conditions for which foreshocks and precursors to earthquake failure can be identified. We encourage seismic studies using data from natural faults, lab results and numerical approaches to understand earthquake physics.