

1135-35-2924 **Daniel Spirn*** (spirn@math.umn.edu), 206 Church St. S.E., School of Mathematics,
Minneapolis, MN 55455. *Detection of a quench in a superconducting cavity.*

Superconducting radio frequency cavities are used to efficiently accelerate particles in high energy experimental labs. Small defects on the cavity surface can cause rapid heating of the cavity, leading to a thermal quench and potential damage the device. We present a method for quench detection in SRF cavities cooled in liquid helium. A rigorous mathematical formula is derived to localize the quench position from dynamical data over a finite time interval at a second sound detector. This is joint work with Ru-Yu Lai (U. Minnesota). (Received September 26, 2017)