1136-65-175 **Xiaobing Feng*** (xfeng@math.utk.edu), Department of Mathematics, The University of Tennessee, Knoxville, TN 37996. *A discontinuous Ritz framework for calculus of variations problems.*

In this talk I shall present a newly developed discontinuous Ritz (DR) framework for a class of calculus of variations problems. The proposed DR framework can be regarded as a counterpart of the discontinuous Galerkin (DG) framework for PDEs. The focuses of the talk will be to discuss main idea for constructing the discrete energy functional, which is based on the discontinuous Galerkin finite element discrete calculus theory, and to establish its Gamma-convergence to the continuous energy functional. Numerical experiment results will also be presented to demonstrate the efficiency of the proposed DR framework. If time permits, numerical techniques for resolving the so-called Lavrentiev phenomenon will also be presented. This is a joint work with Stefan Schnake of the University of Oklahoma. (Received January 12, 2018)