1145-65-1286   **Snorre H Christiansen**, **Jun Hu** and **Kaibo Hu*** (`khu@umn.edu`), School of Mathematics, 206 Church St. SE, University of Minnesota, Minneapolis, MN 55455. *Nodal finite elements for de Rham complexes.*

There have been many discussions on the nodal finite element approximation of problems raised in fluid dynamics and electromagnetism. The C^0 Lagrange finite element has subtle stability issues as an approximation for vector fields on a general mesh since it does not naturally fit into a de Rham complex. In this talk, we modify the Lagrange vector by allowing discontinuity in the normal or tangential direction. This leads to partially discontinuous elements which fit into discrete de Rham complexes. As a result, canonical bases for the scalar Lagrange elements can be used for approximating vector fields. (Received September 20, 2018)