

1086-65-1727      **Michael Neilan\*** (neilan@pitt.edu), 302 Thackeray Hall, Pittsburgh, PA 15260, and **Richard S. Falk** and **Johnny Guzmán**. *Conforming and divergence-free Stokes elements*.

In this talk, we discuss three families of conforming finite elements for the two dimensional Stokes problem that produce exactly divergence-free approximations on very general triangulations. The construction of these elements is guided by two discrete smoothed de Rham complexes (“Stokes complexes”). Extensions to the three dimensional setting will also be discussed. (Received September 24, 2012)