

MATHEMATICAL SCIENCE

Colloquium

Monday, April 14, 2014

**Speaker: Professor Yang Yang
(Michigan Tech)**

TIME: 4:00–5:00pm

LOCATION: Sage 5101

**“Discontinuous Galerkin method for partial differential equations with
blow-up solutions”**

Abstract: We will study the behavior of nonnegative solutions for some time-dependent partial differential equations (PDEs). We are especially interested in solving PDEs whose exact solutions become unbounded in finite time. This phenomenon is called blow-up. In our recent work (Numer Math, 124 (2013), 753-781), we have applied discontinuous Galerkin (DG) methods to obtain good approximations for hyperbolic PDEs with \ddot{a} -singularity, one special unbounded singularity. We will continue this approach and solve other types of PDEs with \ddot{a} -singularities and other types of blow-up solutions. Numerical experiments will be given to demonstrate the advantages for the DG methods in approximating blow-up solutions.

REFRESHMENTS

3:30–4:00PM

Amos Eaton 4th Floor Lounge



Rensselaer