



Department of  
Mathematical Sciences

# Colloquium

**Daniel Dawson**

Assistant Professor

**Purdue University**

**Friday,  
Feb 22, 2019  
EMS Building  
Room E495  
2:00pm**



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## **Interactions between Microphysical and Dynamical Processes in Supercell Thunderstorms as Revealed through Observations and High-resolution Numerical Simulations**

During the past few decades, two major developments in meteorology have revolutionized our understanding of supercell thunderstorms:

1) the advent of Doppler and polarimetric weather radar systems, and  
2) the development of increasingly powerful computers and numerical modeling techniques capable of simulating the complex physical processes within these storms on ever more refined grids.

Microphysical processes in supercell storms exhibit extreme spatio-temporal variability and are challenging to observe and model. Yet numerous recent studies have shown that these processes are strongly linked to the dynamical and thermodynamical behavior of these storms. In view of these links, this talk will focus on recent progress in understanding supercell behavior from a numerical simulation perspective using cutting-edge microphysics schemes informed by polarimetric radar and disdrometer observations.

Finally, I will discuss prospects for improving short-range high-resolution numerical prediction of supercells and associated hazards, and potential future avenues of collaboration with researchers at UWM.

*Light refreshments will be served at 1:30pm in E424A.*



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