

# ***PDE, COMPLEX ANALYSIS AND DIFFERENTIAL GEOMETRY SEMINAR***

**Guest Speaker: John Holmes**  
**The Ohio State University**

**Date:** Tuesday, October 25, 2022

**Time:** 11:00 AM

**Location:** 258 Hurley Hall

**Zoom URL:** [notredame.zoom.us/j/97536382242](https://notredame.zoom.us/j/97536382242)



**Lecture Title:**

**Continuity of the data-to-solution map for several PDEs**

**Abstract**

In 1975, Kato proved the well-posedness (existence, uniqueness, and continuous dependence of the solution on the initial data) for the Cauchy problem corresponding to a general system of symmetric hyperbolic equations. At the end of the paper, he showed via the Burgers equation, that one should not expect that the data-to-solution map be Hölder continuous for any Hölder exponent. Since his result, many mathematicians have refined his ideas while investigating the continuity of the data-to-solution map for similar equations (Euler, Camassa-Holm, others) and proved that for these problems the data-to-solution map is not even uniformly continuous. In this talk we will explore the development of these results, and we will use the ideas introduced by Kato and other mathematicians to prove that, for a general class of hyperbolic conservation laws, the data-to-solution map is not uniformly continuous.