



THE UNIVERSITY  
*of* NORTH CAROLINA  
*at* CHAPEL HILL

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## Undergraduate Research Seminar

Tuesday, November 19

3:30 - 4:30 p.m.

**Zoom**

### **The sharp lifespan for a multiple speed system of wave equations**

Jason Metcalfe (UNC)

Marvin Koonce

**Abstract.** Ohta examined a system of multiple speed wave equations with small initial data and demonstrated a finite time blowup. We show, in the radial case, that the same system exists almost globally and that the same lifespan is a lower bound. To do this, we use variants of the integrated local energy estimate, the Morawetz estimate that results from using the scaling vector field as a multiplier, and mixed-speed ghost weights.