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Invitation to a talk in the

Partial Differential Equations and Mathematical Physics Seminar

by

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on

Hyperbolic balance laws in the context of cosmological fluids

Abstract:

Hyperbolic balance laws crop up in many physical theories including compressible fluid dynamics, electromagnetism, and general relativity. More abstractly, they play a role in models featuring wave phenomena. If nonlinear, these systems are prone to singularity formation, meaning that even small data with high regularity can launch solutions that blow up in finite time. As it turns out, such behavior is generic for conservation laws in low dimension. However, with an appropriate damping source, the formation of singularities like shocks is suppressed for sufficiently small data. In this talk we will discuss how expanding spacetimes, as found in cosmology, can create such a damping effect and explore the dynamics of these competing mechanisms.

Time: Thursday, 20th November 2025, 13:30–14:30

Location: BZ 9, 9th floor, OMP