



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

M. E. Taylor Analysis and PDE Seminar

October 25, 2023
3:30 - 4:30 p.m.
Phillips Hall 385

Some recent progress on integrable PDEs

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Abstract. Integrable PDEs arise as leading-order models in an astonishingly wide range of physical scenarios, such as fluid dynamics, ferromagnetism, and nonlinear optics. For rapidly decaying solutions, the inverse scattering method provides a powerful tool for understanding their dynamics. However, due to the requirement of rapid decay, inverse scattering techniques cannot be used to analyze even the set of all finite energy solutions. In this talk, I will survey some recent work on the dynamics of solutions to integrable PDEs in translation-invariant spaces. In particular, I will discuss several optimal well-posedness results obtained in collaboration with Rowan Killip, Maria Ntekoume, and Monica Visan.