

Guest Speaker: Dr. Jonatan Lenells

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Long-time asymptotics for nonlinear integrable PDEs

Abstract:

For a certain class of nonlinear PDEs, referred to as integrable PDEs, it is possible to derive remarkably precise asymptotic formulas for the long-time behavior of the solution by using inverse scattering techniques together with a nonlinear version of the steepest descent method. I will give an introduction to this circle of ideas using the sine-Gordon equation as an illustrative example. At the end, I will present some new results on the topological charge and on the interaction between the asymptotic solitons and the radiation background for the sine-Gordon equation.

About the speaker:

Dr. Jonatan Lenells's work focuses primarily on nonlinear partial differential equations and their applications to problems in mathematical physics. After completing his Ph.D. in Mathematics at Lund University in Sweden in 2006, he served as a Visiting Assistant Professor at the University of California, Santa Barbara (2006-2007), as a Marie Curie Research Fellow at the University of Cambridge (2007-2009), and as a Research Fellow at the Gottfried Wilhelm Leibniz University (2009-2010). Before joining the KTH faculty in 2014, he was an Assistant Professor at Baylor University (2010-2014). At KTH, he leads a group of 2 PhD students and 7 postdocs and is the PI of grants from the European Research Council, the Swedish Research Council, and the Ruth and Nils-Erik Stenbäck foundation. His work has 3141 citations with h-index 33 according to Google Scholar.

Date: Friday October 23, 2020

Time: 1:30 – 2:30 PM

Zoom link: <https://utrgv.zoom.us/j/9082139008>

If you have any questions please contact Dr. Baofeng Feng (baofeng.feng@utrgv.edu) or Dr. Elena Poletaeva (elena.poletaeva@utrgv.edu).