Approximate Solutions to the Two Space Dimensional Euler Equations

Speaker: Dr. Vesselin Vatchev

Abstract:

The Euler Equations in Fluid dynamics first appeared more than 250 years ago to study fluid flows. In the talk we discuss the two space dimensional PDE governing inviscid flow in a narrow channel.

The system of equations consists of two linear and two nonlinear equations and a popular procedure to study it is to get a parametric solution of the linear equations and then to use the method of asymptotic expansion to approximate the nonlinear equations. At the next stage one usually seeks solitonic type traveling waves.

In the talk we discuss a modification of the asymptotic approximation approach for traveling wave solutions. The idea is first to get solutions of the nonlinear pair of PDE. The resulting functions we have obtained so far are approximate solutions of a higher order and in a variety of channel settings.

Cookies and Coffee will be provided

Date: Friday, February 9, 2024
Time: 2:00pm – 3:00pm CT
Location:BLHSB 1.316
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Zoom: https://utrgv.zoom.us/j/85333215080