Applying Mollifyers to Numerically Solved PDE's

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November 3, 1997

On the Wednesday, Oct. 29, 1997 Dr. Joseph Kolibal, who is professor in the Department of Mathematics of University of Southern Mississippi, gave us talk of "Applying Mollifyers to Numerically Solved PDE's".

First, he said, during the past years they did researches in the approximations of functional derivatives which are constructed a process of mollification. The resultant functional approximations are analytic and are suitable for numerically solving partial differential equations. Since the derivatives are obtained analytically from a smooth approximation of the function, all derivatives at a point are available at any location in the domain domain during the numerical differentiation.

He said that using mollification method to applied to a hyperbolic PDE, the De Laval nozzle problem in computational fluid dynamics. He demonstrate to solve the Euler equations to us by second order accurate in time and space finite difference formulation. This system of equations can be written in a nondimensionalized fashion in two dimensions.