998-65-191 **Pedro Gonzalez-Casanova*** (pedrogc@dgsca2.unam.mx), DGSCA, UNAM, Ciudad Universitaria, Circuito Exterior, Delegacion Coyoacan, C.P. 04510, Mexico, D.F. Ciudad de Mexico, Mexico. *A Shape Preserving and Variation Diminishing Radial Quasi interpolant in Compact Domains.*Preliminary report.

It is well known that the numerical approximation of shocks related to hyperbolic conservation laws has been the subject of an enormous research effort. Within the context of radial basis function theory, it has been suggested that a successful development of semi-Lagrangian's algorithms for conservation laws, may be achieved if the Eulerian approximation of the grid is both shape preserving and variation diminishing. Motivated by this idea, in this talk we introduce a new type of radial basis function quasi interpolant defined in a bounded set in 2D. The new scheme is scheme is both shape preserving and variation diminishing. Moreover, by using mean value integral functionals on disks instead of point-evaluation functionals to build the quasi interpolant, we are able to approximate discontinuous functions with almost no oscillations at or near the jump discontinuity. The shape preserving and the variation diminishing properties of the numerical scheme, are a obtained by building the quasi interpolant based on a semidiscret scheme rather than a full discrete scheme. This construction also implies that the quasi interpolant is able to approximate an unknown function at any point near to or at the boundary of the domain.

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