

## 2012 Special Program in Applied Mathematics and Applied Mechanics

*Multi-moment constrained formulation for high order schemes*

2012 - 03 - 28 (Wed.)

15:00 - 17:00

308, Mathematics Research Center Building (ori. New Math. Bldg.)

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In this talk, I will present a general formulation to construct high order numerical schemes by using multi-type (multi-moments) constraint conditions on the flux function reconstruction. The new formulation, so called multi-moment constrained flux reconstruction (MMC-FR), distinguishes itself substantially from the flux reconstruction formulation (FR) of Huynh (2007, 2009) by imposing not only the continuity constraint conditions on the flux function at the cell boundary, but also other types constraints which may include those on the spatial derivatives or the point collocations. This formulation can be also interpreted as a blend of the Lagrange interpolation and the Hermite interpolation, which leads to a numerical framework for a wide spectrum of high order schemes. Some representative schemes will be presented and evaluated through Fourier analysis and numerical experiments.

