

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

Colloquium

**Highly efficient and accurate structure preserving schemes
for complex nonlinear systems**

By

**Prof. Jie Shen
Purdue University**

Abstract

Many complex nonlinear systems have intrinsic structures such as energy dissipation or conservation, and/or positivity/maximum principle preserving. It is desirable, sometimes necessary, to preserve these structures in a numerical scheme.

I will present some recent advances on using the scalar auxiliary variable (SAV) approach to develop highly efficient and accurate structure preserving schemes for a large class of complex nonlinear systems. These schemes can preserve energy dissipation/conservation as well as other global constraints and/or are positivity/bound preserving, only require solving decoupled linear equations with constant coefficients at each time step, and can achieve higher-order accuracy.

Date : 25 January, 2021 (Monday)

Time : 10:00-11:00 (Hong Kong Standard Time GMT +8)

Venue : Online Talk via Zoom(Meeting ID: 972 4565 2059)

Speaker: Prof. Jie Shen, Purdue University

Host: Dr. Qiao Zhonghua, The Hong Kong Polytechnic University

Click to join :

<https://polyu.zoom.us/j/97245652059?pwd=bU9PaFhGUDRaU1dVei9tTlo5dkR4QT09>



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***** ALL ARE WELCOME *****

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