

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

Colloquium

An efficient and unconditionally energy stable fully discrete scheme for the confined ternary blended polymers model

By

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Beijing Normal University**

Abstract

We develop a fully discrete scheme to solve the confined ternary blended polymers (TBP) model with four order parameters based on the stabilized-scalar auxiliary variable approach in time and the Fourier spectral method in space. Then, theoretical analysis is given for the scheme based on the backward differentiation formula. The unconditional energy stability and mass conservation are derived. Rigorous error analysis is carried out to show that the fully discrete scheme converges with order $O(\tau^2+h^m)$ in the sense of the L^2 norm. Finally, some numerical results are given to demonstrate the theoretical analysis. Moreover, the phase separation of two kinds of polymer particles, namely, Ashura and Janus core-shell particles, is presented to show the morphological structures.



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Date: 20 October 2022 (Thursday)

Time: 9:00-10:00 (Hong Kong Standard Time GMT +8)

Venue: Online Talk via Zoom (Meeting ID: 931 2158 8273)

Speaker: Prof. Guanghua Ji, Beijing Normal University

Host: Dr. Xiao Li, The Hong Kong Polytechnic University

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<https://polyu.zoom.us/j/93121588273?pwd=bXFFaGVYQUpnOUtLSmVEa05zRlAzUT09>

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

For enrolment, please send your name and email to wai-yan.moon@polyu.edu.hk on or before 19 October 2022