

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

Colloquium

A Hybrid Method for Multiscale PDEs

By

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Abstract

We propose a hybrid numerical method for multiscale partial differential equations, which retrieves the macroscopic information and the local microscopic information at one stroke. The method is based on the blending function and the Nitsche variational principle. We prove the convergence of the method for second order elliptic problem with bounded and measurable coefficients. The rate of convergence may be derived for coefficients with further structures such as periodicity and ergodicity. Extensive numerical results confirm the theoretical predictions.



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Date: 25 March 2022 (Friday)

Time: 11:00-12:00 (Hong Kong Standard Time GMT +8)

Venue: Online Talk via Zoom (Meeting ID: 965 1349 6667)

**Speaker: Prof. Ping Bing Ming, Academy of Mathematics and Systems Sciences,
Chinese Academy of Sciences**

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

Click to join:

<https://polyu.zoom.us/j/96513496667?pwd=RmVMOTduSmhjSW1qTERJUFg0QTNUdz09>

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

For enrolment, please send your name and email to wai-yan.moon@polyu.edu.hk on or before 24 March 2022