

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

**Colloquium**

**An Efficient Operator Splitting Method for Inextensible  
Interface with Bending Problem  
by**

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**Abstract**

We introduce a novel operator splitting method for solving the inextensible interface with bending problem. The governing equations are non-stationary Stokes equations with a moving inextensible interface with bending. The numerical method is based on a developed energy stable immersed boundary scheme that the total energy is decreasing and bounded without any time step constraint. The resultant matrix equations can be decoupled using operator splitting into several steps that each step can be efficiently solved by fast elliptic solvers. We also demonstrate the scheme in matrix and PDE forms. The method is efficient and the results are in good agreement with the ones in literature.

**Date : 29 April 2019 (Monday)**  
**Time : 10:00am - 11:00am**  
**Venue : TU801, The Hong Kong Polytechnic University**

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