

# Kun Li

Room 439, Building 1  
Chuangchunxinyuan  
Peking University

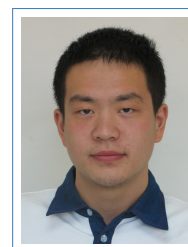
☎ 86-18901297280

☎ 86-10-62742317

✉ [galoispure@gmail.com](mailto:galoispure@gmail.com)

[kli@math.pku.edu.cn](mailto:kli@math.pku.edu.cn)

🌐 <http://dsec.pku.edu.cn/~kli>



## Education

2002–2006 **B.S.**, *Scientific and Engineering Computing*, School of Mathematical Sciences, Peking University.

2006–Now **Ph.D. candidate**, *Scientific and Engineering Computing*, School of Mathematical Sciences, Peking University.  
supervisors Prof. Jinchao Xu and Prof. Pingwen Zhang

## Research Interests

Modeling and numerical simulation in complex fluid (Polymer, Liquid Crystal, Magnetohydrodynamics)

- Discrete exterior calculus and its application in complex fluid
- Diffusion in complex fluid model and constitutive modeling for wormlike micelles
- Closure approximation

## Visiting Experience

2008.10–2009.6 **Visiting Student**, *Department of Mathematics*, Penn. State University.

Host: Prof. Jinchao Xu and Prof. Chun Liu

Topic: Numerical Simulation of Magnetohydrodynamics

2009.6 **Visiting Student**, *Department of Mathematics*, Rutgers University.

Host: Assistant Professor Youngju Lee

Topic: Diffusion in complex fluid

2010.2 **Visiting Student**, *Department of Mathematics*, ETH (Swiss Federal Institute of Technology Zurich).

Host: Prof. Ralf Hiptmair .

Topic: Discrete Lie Derivative

## Publications

### Paper Published

H. Wang, K. Li, and P. Zhang. Crucial properties of the moment closure model FENE-QE. *Journal of Non-Newtonian Fluid Mechanics*, 150(2-3):80–92, 2008.

## Paper Submitted

Kun Li and Youngju Lee. On Boundary Conditions for Diffusive Complex Fluids Models and the Stability of the MAC scheme. *Submitted to Journal of Non-Newtonian Fluid Mechanics.*

## Paper in Preparation

joint work with, Holger Heumann, Ralf Hiptmair, and Jinchao Xu. Semi-Lagrangian methods for advection of differential forms.

joint work with, Youngju Lee, Chensong Zhang, and Jinchao Xu. Multigrid methods for solving steady convection–diffusion problems.

joint work with, Chun Liu, and Jinchao Xu. An Eulerian-Lagrangian Discretization Method for Convection in Magnetohydrodynamics.

joint work with, Oliver Sander, Jinchao Xu, and Pingwen Zhang. On Accurate Integration in the Eulerian Lagrangian Method.

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## Teaching

Autumn 2007, Autumn 2009 *Calculus I*, Teaching Assistant

Summer 2008, Summer 2009 *Numerical and Analytical Methods for PDE*, Teaching Assistant

Autumn 2007 *Computational Methods*, Teaching

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## Activity and Talks

Oct 25-29, 2007 The 8th Annual Meeting of Comp Math in China, Chengdu, China.

May 26-30, 2008 Workshop 3, Thematic Program on Multiscale Modeling of Complex Fluids, Beijing, China. Talk: Quasi-equilibrium approximation in FENE model and its numerical challenge.

Apr 24-25, 2009 The Spring 2009 Finite Element Circus, University of Delaware.

May 18-22, 2009 IMA program “Molecular Simulations: Algorithms, Analysis, and Applications”, IMA, University of Minnesota.

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## Miscellaneous

○ Language: Chinese, English

### Computer Skill

- OS: Linux, Mac OS X
- Programming: C, C++, Shell
- Software package for scientific computing: MATLAB, AFEPack, DUNE
- Software package for statistics: STATA