



Department of Mathematics  
The Institute of Mathematical Sciences  
The Chinese University of Hong Kong

For Favour of Posting

數學系  
數學科學研究所  
香港中文大學

Phone: (852) 3943 7988 • Fax: (852) 2603 5154 • Email: [dept@math.cuhk.edu.hk](mailto:dept@math.cuhk.edu.hk) (Math. Dept.)

Phone: (852) 3943 8038 • Fax: (852) 3942 1020 • Email: [ims@ims.cuhk.edu.hk](mailto:ims@ims.cuhk.edu.hk) (IMS)  
Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

# Mini-Course

## Heat kernels on Riemannian manifolds

*Professor Alexander Grigor'yan*

*Universität Bielefeld, Germany*

### Abstract

The course is devoted to the heat equation and heat kernel on arbitrary Riemannian manifolds. The following topics will be considered.

1. Cauchy problem for the heat equation: uniqueness classes.
2. Stochastic completeness: equivalent conditions and volume test.
3. Long time behaviour of the heat kernel and isoperimetric properties.
4. Heat kernel bounds and volume growth.
5. Escape rate of Brownian motion on manifolds with polynomial volume growth.

**Date :** 8, 15, 22 March, 2018 (Thursday)  
**Time :** 10:00am – 12:00noon  
**Venue :** Room 222, Lady Shaw Building  
The Chinese University of Hong Kong

**Date :** 27 March, 2018 (Tuesday)  
**Time :** 2:00pm – 4:00pm  
**Venue :** Room 222, Lady Shaw Building  
The Chinese University of Hong Kong

*All are Welcome*