

# Distinguished Lecture Series in Dynamical Systems

## Integrability and Rigidity for Convex Billiard

### Lecture Abstract

The main topic of the minicourse is dynamics of Birkhoff billiards or billiards in convex bounded regions. Motivated by the famous question "Can you hear the shape of a drum?" We shall discuss several notions of deformational spectral rigidity for convex billiards. It turns out that techniques to study these notions are also applicable to perturbative Birkhoff Conjecture about integrable billiards.

### Organizer

Kuo-Chang Chen  
National Tsing Hua University

### Contact

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Registration

SPEAKER



Prof. Vadim Kaloshin  
IST Austria

Kaloshin教授是動力系統領域的領導人物，他在Hamiltonian系統穩定性、可積性、天體力學、動態撞球、動態黎曼ζ函數等方向均有開創性的工作，近年關於Birkhoff猜想的工作備受矚目(Ann. Math.2016,2017,2018, GAFA 2018)，希望本系列演講能夠顯著提升國內相關領域的國際視野與水平。

### Time

3/3

Friday  
4:30-5:30 pm

#### Lecture 1

Can you hear the shape of a drum?  
Laplace and length spectra of convex domains, elementary properties.

3/6

Monday  
4:30-5:30 pm

#### Lecture 2

Lazutkin coordinates of convex domains. Action-angle and elliptic coordinates for billiards in an ellipse.

3/7

Tuesday  
4:30-5:30 pm

#### Lecture 3

Deformational Spectral Rigidity of axis-symmetric nearly circular domains.

3/8

Wednesday  
4:30-5:30 pm

#### Lecture 4

Local Birkhoff Conjecture for convex planar billiards.

### Venue

Room 515, Cosmology Bldg.,  
National Taiwan University +Cisco Webex,  
Online + Onsite Lecture