

Special Afternoon of Geometry, Topology and Dynamics Seminar

Date: Wednesday, 04 February 2026

Venue: S17 #04-05 (Seminar Room 2)

PROGRAMME SCHEDULE

| Time | Speaker | Title |
|---------------|---|---|
| 14:00 – 15:00 | Ngoc Cuong Nguyen (KAIST) | Local properties of complex Sobolev spaces and functional capacity |
| 15:00 – 16:00 | Asbjørn Nordentoft (University of Copenhagen) | Thin subgroups of Fuchsian groups, hyperbolic orbifolds, and geodesic lifting |
| 16:00 – 17:00 | Dano Kim (Seoul National University) | L^2 extension of holomorphic functions and log canonical places |

ABSTRACTS

14:00 – Ngoc Cuong Nguyen

We study comprehensively local properties of functions in complex Sobolev spaces, introduced by Dinh and Sibony (2006), on a bounded open sub-set of C^n . The main tool is the corresponding functional capacity for the space which is inspired by the global one due to Vigny (2007). An inequality between this capacity and the Bedford-Taylor capacity for plurisubharmonic functions is proved, which is sharp as far as the exponents are concerned. Moreover, it is shown that the functional capacity is a Choquet capacity. The Alexander-Taylor type inequality for the capacity is also proved. This allows us to strengthen the results in the works of Dinh, Marinescu and Vu (2023), Vigny and Vu (2024).

15:00 – Asbjørn Nordentoft

To any thin subgroup of a finite co-volume Fuchsian group one can associate a hyperbolic orbifold with geodesic boundary. The projection of the geodesic boundary gives a stratification (or partition) of the set of all thin subgroups. In this talk I will explain how in some cases one can understand the fibers of this stratification. This is related to the problem of lifting closed geodesics ‘simply and separating’. In the case of the modular group this gives a new and geometric perspective on a construction of Duke, Imamoglu and Toth using (minus) continued fractions.

16:00 – Dano Kim

The theory of L^2 extension theorems is a central topic in several complex variables with numerous applications to complex/algebraic geometry and complex analysis. They are analogous to vanishing theorems in algebraic geometry and often serve as a stronger counterpart of vanishing as exemplified in the proof of Siu’s invariance of plurigena. In this talk, in the opposite direction, I will discuss how certain ideas from algebraic geometry are crucially used in answering a question raised by Demailly on understanding general L^2 extension theorems, via the theory of log canonical pairs. This talk is partly based on joint work with Xu Wang (Trondheim).

CONTACT

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