



Frontiers of Mathematics Lecture

30 years of virtual fundamental chain

Abstract

In symplectic geometry we study moduli space of curves in a symplectic manifold. Such a moduli space is in general highly singular. To obtain various information from such singular spaces is a key problem to be solved.

'Virtual technique' was developed in these 20-30 years for this purpose and is still developing. It is related to the basic question how we understand a singular object in differential topology. I will explain some of the aspects of this problem.

Biography

Kenji Fukaya obtained his Bachelor's degree in Mathematics from the University of Tokyo in 1981 and earned his Ph.D. from the same institution in 1986 under the supervision of renowned Japanese mathematician Akio Hattori. From 1983 to 1993, he held positions as a Research Assistant and later Associate Professor at the University of Tokyo. In 1994, he was appointed Professor of Mathematics at Kyoto University. Fukaya became a permanent member of the Simons Center for Geometry and Physics at Stony Brook University in 2013. In the fall semester of 2024, he joined Yau Mathematical Sciences Center of Tsinghua University and the Beijing Institute of Mathematical Sciences and Applications as a full-time professor. Professor Fukaya has received numerous prestigious awards in mathematics, including the Geometry Prize from the Mathematical Society of Japan (1989), the Inoue Prize for Science (2002), the Japan Academy Prize (2003), the Asahi Prize (2009) and the Fujiwara Prize (2012). Most recently, he was awarded the 2025 Shaw Prize in Mathematical Sciences "for his pioneering work on symplectic geometry, especially for envisioning the existence of a category — nowadays called the Fukaya category — consisting of Lagrangians on a symplectic manifold, for leading the monumental task of constructing it, and for his subsequent ground-breaking and impactful contributions to symplectic topology, mirror symmetry, and gauge theory".



Professor Kenji FUKAYA
Tsinghua University

Date :
May 6, 2026 (Wednesday)

Time :
4:00 – 5:00 pm

Venue :
Lecture Theatre A, 1/F,
Chow Yei Ching Building,
The University of Hong Kong

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