

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

[JOIN THE SEMINAR](#)

4 June 2026, 6 pm (UTC+3)

# An Entire Function Analogue of Smale's 12th Problem on Centralizers

Tuen Wai Ng, The University of Hong Kong, Hong Kong

[ntw@maths.hku.hk](mailto:ntw@maths.hku.hk)

In 1998, Stephen Smale proposed 18 mathematical problems for the 21<sup>st</sup> century. Problem 12 asks whether a diffeomorphism of a compact manifold can be approximated by one whose centralizer is trivial. This was solved in the  $C^1$  topology by Bonatti, Crovisier, and Wilkinson (2009), but remains open for higher regularities. In this paper, we formulate and resolve an analogue of Smale's 12th problem for entire functions on the complex plane. Specifically, we prove that the set of non-constant entire functions with trivial centralizer is dense in the space of all entire functions equipped with the topology of locally uniform convergence.

\*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to [ademp.seminar@gmail.com](mailto:ademp.seminar@gmail.com) (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



Regional Mathematical Center  
<https://rmc.sfedu.ru/>



Institute of Mathematics, Mechanics  
and Computer Sciences  
<http://www.mmcs.sfedu.ru/>



OTHA research network in  
Operator Theory and Harmonic Analysis  
<http://msrn.sfedu.ru/>