The Ladyzhenskaya Lecturer 2026

Professor Rupert Frank (LMU Munich, Germany)

Rupert Frank was born in 1978. He has obtained a PhD degree from the Royal Institute of Technology Stockholm in 2007. Since 2016 he holds a chair in Analysis and Applied Mathematics at LMU Munich.

His research is primarily in the fields of analysis and mathematical physics and was recognized by the IUPAP Young Scientist Prize in Mathematical Physics. He has been an invited speaker at the ICM 2022, at the ECM 2021 and at the ICBS 2025.

Title of the Lecture: **Direct and inverse scattering for the continuum Calogero-Moser equation.**

Abstract: The CCM equation (also known as Calogero–Moser derivative nonlinear Schrödinger equation) is a nonlinear dispersive equation in 1+1 dimensions that is completely integrable. The corresponding Lax operator is a first order operator in the Hardy space on the real line. We develop a spectral theory of this operator, building Jost solutions, proving absence of singularly continuous spectrum and introducing scattering coefficients. We also prove trace formulas of Birman-Krein and Faddeev-Zakharov type. Finally, we propose an inverse scattering scheme for the solution of the CCM equation.

The talk does not assume any previous knowledge of the CCM equation. It is based on joint work with Larry Read.

The Lecture will be held at the joint meeting of the V.I. Smirnov Seminar on Mathematical Physics and St. Petersburg Mathematical Society on March 9, at **16-30** (St. Petersburg time) in Zoom.