

# BERNOULLIS TAFELRUNDE

MATH STUDENTS AND PHDS SEMINAR

**Wednesday, 26 November 2025, 12:15 - 13:00**

Seminar Room 05.001, Spiegelgasse 5

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## The Fractional Laplacian and Fractional Equations

### ABSTRACT

We introduce the fractional Laplacian operator  $(-\Delta)^s$ , motivating its study by illustrating its effectiveness in modelling super-diffusion. We then consider the fractional Gelfand equation, a fractional analogue of the classical Gelfand equation describing an isothermal gas sphere in gravitational equilibrium. In one spatial dimension, we establish existence and uniqueness of solutions, and discuss blow-up phenomena as well as the long-time behaviour of the associated parabolic flow.



*Scan before 25.11.2025 at  
18:00 to register for lunch*