ZHICHUN ZHAI, MacEwan University

Sobolev Extension and Trace-Type Inequalities via Fractional Dissipative Equations

Analytic inequalities, particularly Sobolev inequalities, play a fundamental role in the study of partial differential equations. In this talk, we will demonstrate how fractional dissipative equations give rise to Sobolev extension and trace-type inequalities. We regard the solutions of fractional dissipative equations as functionals of their initial data. Using capacity methods, we characterize the extension from the initial data to the corresponding solutions. Conversely, by viewing the initial data as the trace of the solution, we establish corresponding Sobolev trace-type inequalities.