Nonlinear and Geometric PDEs
EDP non-linéaires et géométriques
(Org: **Joshua Flynn** (Massachusetts Institute of Technology) and/et **Jérôme Vétois** (McGill University))

LORENZO CARLETTI, University of Oxford

NGUYEN LAM, Memorial University of Newfoundland
Doubly sharp Poincaré–Sobolev inequalities on hyperbolic spaces

We study when one can subtract the full spectral gap $\left(\frac{N-1}{p}\right)^p$ of the p-Laplacian on the hyperbolic space $\mathbb{H}^N$ and still keep the sharp Euclidean Sobolev constant. Using a change of function which keeps the L^p norm, together with a one-dimensional tangent line inequality, we establish such doubly sharp inequalities with explicit remainder terms in new ranges of p, including $N = 3$ and $2 \leq p < 3$. The same method also gives sharp logarithmic Sobolev inequalities with the full spectral gap. This is joint work with A. X. Do, D. Ganguly and G. Lu.

GALEN NOVELLO, University of New Mexico

RAQUEL PERALES, Centro de Investigación en Mátematicas, Guanaujato

JACOB REZNIKOV, Massachussets Institute of Technology

DIMITER VASSILEV, University of New Mexico
Regularity of Solutions to Non-Local Operators on Homogeneous Groups

We prove a Harnack inequality and show Hölder continuity of solutions to non-linear nonlocal operators on homogeneous groups.

SAMUEL ZEITLER, Carnegie Mellon University