Sharp Moser-Trudinger and Adams type inequalities

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In this talk, we will present some recent development on sharp Moser-Trudinger type inequalities on first order Sobolev spaces and Adams type inequalities on high order Sobolev spaces on both Euclidean spaces and Heisenberg groups. Since the symmetrization argument is not available on these settings, we will propose a rearrangement-free method to study these sharp inequalities.