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*Lipschitz spheres in the Heisenberg groups*

Lipschitz maps from  $n$ -balls to the  $(2n - 1)$ -dimensional Heisenberg group  $\mathbb{H}^n$  (with a sub-Riemannian metric) are abundant, but Lipschitz maps from higher-dimensional balls are rare. That is, any Lipschitz  $(n - 1)$ -sphere can be filled by a Lipschitz  $n$ -ball, but most  $n$ -spheres can't be filled by  $(n + 1)$ -balls. What about higher dimensions? In this talk, we'll describe the Lipschitz homotopy groups of the Heisenberg group and construct fractals in  $\mathbb{H}^n$  that fill some higher-dimensional spheres. Joint work with Stefan Wenger.