Talk title: Sharp L^p bounds for the helical maximal function

Abstract: A natural 3-dimensional analogue of Bourgain's circular maximal function theorem in the plane is the study of the sharp L^p bounds in $\mathbb{R}^3$ for the maximal function associated with averages over dilates of the helix (or, more generally, of any curve with non-vanishing curvature and torsion). In this talk, we present a sharp result, which establishes that L^p bounds hold if and only if $p>3$. This is joint work with Shaoming Guo, Jonathan Hickman and Andreas Seeger.