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Title: *Maximal Subellipticity*

Abstract: The theory of elliptic PDEs stands apart from many other areas of PDEs because sharp results are known for very general elliptic PDEs (linear, fully nonlinear, boundary value problems, . . .). Many of the classical techniques from harmonic analysis were first developed to prove these sharp results; and the study of elliptic PDEs is intimately intertwined with the Fourier transform and Riemannian geometry. Starting with the work of Hörmander, Kohn, Folland, Stein, and Rothschild in the 60s and 70s, a far-reaching generalization of ellipticity was introduced: now known as maximal subellipticity. A wide program was initiated to generalize the elliptic theory to these possibly much more degenerate partial differential operators. Where elliptic operators are connected to Riemannian geometry, maximally subelliptic operators are connected to Carnot-Carathéodory geometry. The Fourier transform is no longer a central tool but can often be replaced with more modern tools from harmonic analysis. In this talk we describe some results regarding general maximally subelliptic PDEs, viewed through the lens of elliptic PDEs and classical harmonic analysis.