# SOME GLOBAL REGULARITY RESULTS FOR DEGENERATE SUM-OF-SQUARES OPERATORS

Gian Maria Dall'Ara

(University of Pisa)

**Abstract**: I will report on recent investigations, in part joint with A. Martini (Politecnico di Torino), on global regularity properties of sum-of-squares operators that fail to satisfy the celebrated Hörmander condition on a "thin" set. Under appropriate assumptions on the structure of the thin set in question, the operator is shown to be globally hypoelliptic despite not being locally hypoelliptic, and sometimes even to satisfy a stronger "Kohn-Nirenberg compactness estimate".

While our results deal exclusively with "real" operators, the methods owe a lot to some of those developed by Boas and Straube for the d-bar Neumann problem, and on ideas from an on-going joint project with A. Berarducci (Università di Pisa), B. Lamel (Universität Wien), M. Mamino (Università di Pisa) and S. Mongodi (Università Milano-Bicocca) on the Levi core in the o-minimal setting.