VIRTUAL EAST-WEST SCV SEMINAR

January 18, 2022

Tran Vu KHANH
Tan Tao University

Hypoellipticity of degenerate elliptic operators

Let L be a operator acting on distributions of a manifold M and $x^0 \in M$. We say that L is hypoelliptic at x^0 if

$$\text{whenever } Lu \in C^\infty_{x^0} \text{ then } u \in C^\infty_{x^0},$$

where $C^\infty_{x^0}$ is the space of germs of smooth functions at x^0. The classical theory of Partial Differential Equations shows that L is hypoelliptic if L is elliptic. However, there are a lot of operators raising in Geometry Analysis and Several Complex Variables, for example, sub-Laplacian, 'sum of squares of vector fields", Kohn-Laplacian, are not elliptic. The purpose of this talk is to give a new criterion for hypoellipticity of second order differential operators.
