1108-42-359 **Phi L Le*** (llc33@mail.missouri.edu), **Steve Hofmann** (hofmanns@missouri.edu) and **Andrew Morris** (morris@maths.ox.ac.uk). *L^p bounds for Riesz transforms, square root functions associated to degenerate elliptic operators.*

In this talk, we give some new results related to Kato problem for degenerate elliptic operators. More precisely, we show that if $L = -\mathrm{div} A\nabla$ is a degenerate elliptic operate satisfying weighted elliptic conditions, i.e. $\lambda\mu(x)|\xi|^2 \leq \langle A(x)\xi, \xi\rangle \leq \Lambda\mu(x)|\xi||^2$ where A is a n by n real matrix defined on $\mathbb{R}^n$, $A \in L^\infty$ and μ belongs Muckenhoupt A_2 class, then we prove that we have the L^p bound for square root function $\sqrt{L}$, for Riesz transform associated to operator L and also L^p bounds for semigroups, gradient of semigroups and their related functions. (Received January 18, 2015)