1104-42-36 **David Cruz-Uribe** and **José María Martell*** (chema.martell@icmat.es), Instituto de Ciencias Matemáticas, CSIC-UAM-UC3M-UCM, C/ Nicolas Cabrera, 13-15, 28049 Madrid, Spain, and **Cristian Rios**. *The Kato square root problem for degenerate elliptic operators revisited.*

Let L_w be a divergence form degenerate elliptic operator with degeneracy controlled by a Muckenhoupt A_2 weight w. C. Rios and D. Cruz-Uribe solved the Kato problem for L_w obtaining that these operators satisfy the $L^2(w)$-estimates

$$\left\|L_w^{1/2} f\right\|_{L^2(w)} \approx \left\|\nabla f\right\|_{L^2(w)}.$$

In this talk we will present some recent results showing that, for some restricted class of A_2 weights, we can obtain the unweighted Kato problem for degenerate elliptic operators, that is,

$$\left\|L_w^{1/2} f\right\|_{L^2(dx)} \approx \left\|\nabla f\right\|_{L^2(dx)}.$$

These estimates are proved by developing the $L^p(w)$-theory for the operators associated with L_w and by establishing "weighted" estimates (with respect to the underlying measure $dw(x) = w(x)\,dx$) for these operators. (Received July 28, 2014)