1022-11-67          **Sungkon Chang\*** (`changsun@mail.armstrong.edu`), Department of Mathematics, 11935
Abercorn St, Savannah, GA 31419. *Quadratic twists of elliptic curves with small 2-Selmer rank.*

Let $E/\mathbb{Q}$ be an elliptic curve given by $y^2 = x^3 + ax + b$ with no rational 2-torsion points. We denote by $E_D$ a quadratic twist $D\,y^2 = x^3 + ax + b$, and by $\mathsf{Sel}^{(2)}(E_D)$ the 2-Selmer group of $E_D$. In this talk, we shall discuss how to find an integer $D$ for which $\mathsf{Sel}^{(2)}(E_D)$ is small. By our earlier result, this implies that there are infinitely many twists with small Selmer rank. Our method is rather direct. Using Schaefer's frame work on computing Selmer groups, we can identify each $\mathsf{Sel}^{(2)}(E_D)$ with a subgroup of a fixed space $L^*/(L^*)^2$ where is $L$ is a number field, and we carry out explicit computation in that fixed space using the idea of a proof of the quadratic reciprocity law of number fields. (Received September 08, 2006)