1117-11-52 **Ken Ono** and **Sarah Trebat-leder*** (`strebat@emory.edu`). *The* 1729 *K*3 *Surface.*

We revisit the mathematics that Ramanujan developed in connection with the famous "taxi-cab" number 1729. A study of his writings reveals that he had been studying Euler's diophantine equation

$$a^3 + b^3 = c^3 + d^3.$$

It turns out that Ramanujan's work anticipated deep structures and phenomena which have become fundamental objects in arithmetic geometry and number theory. We find that he discovered a $K3$ surface with Picard number 18, one which can be used to obtain infinitely many cubic twists over $\mathbb{Q}$ with rank ≥ 2. (Received December 27, 2015)