

1009-01-133 **Lawrence D'Antonio*** (ldant@ramapo.edu), Ramapo College, 505 Ramapo Valley Rd.,
Mahwah, NJ 07430. *The History of Euler's Conjecture.*

Which conjecture you say, or perhaps, which Euler? The Euler is, of course, the celebrated Leonhard Euler and the conjecture comes from the area of Diophantine analysis. The conjecture is related to Fermat's Last Theorem. Euler had proven the special case of Fermat's Last Theorem that the sum of two cubes is never a cube. He then conjectured that the sum of three fourth-powers is never a fourth-power, the sum of four fifth-powers never a fifth power and so on. In this talk we will examine Euler's analysis of this and similar Diophantine problems. We will also look at subsequent work on the conjecture, leading up to the 1988 article of Noam Elkies disproving the conjecture for fourth-powers (it had previously been disproved for fifth-powers). (Received August 12, 2005)