1129-14-77 **Fabrizio ME Catanese*** (`fabrizio.catanese@uni-bayreuth.de`), mathe 8, 95448 bayreuth, Germany. *Canonical surfaces of high degree and uniformization.* Preliminary report.

Given a projective algebraic surface S of general type, one defines its canonical degree d as the degree of its image under the canonical map (a rational map). The canonical degree is bounded by the canonical volume K_S^2. There is the Noether inequality $d \geq K_S^2$, and the BMY inequality says that $K_S^2 \leq 9(1 - q + p_g) \leq 9(1 + p_g)$. Together with Ingrid Bauer, we constructed a ball quotient surface with $p_g = 4, q = 0$ and maximal canonical volume K_S^2, against a prediction of Enriques. However the canonical degree was only 19. I shall present several new results concerning the canonical degrees and the canonical map of some surfaces isogenous to a product (these are uniformized by the bidisk), and raise several open questions. For example we obtain d=56 for $p_g = 6$, but the question of finding surfaces with $p_g = 6$ which are canonically embedded and with high K_S^2 is related with some difficult question in homological algebra. (Received March 03, 2017)