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Sander R. Dahmen* (sanderdahmen@gmail.com), Department of Mathematics, The University of British Columbia, 1984 Mathematics Road, Vancouver, B.C. V6T 1Z2, Canada. *On the Diophantine equation $ax^2 + by^3 = cz^5$.* Preliminary report.

For given nonzero integers a, b, c we consider the Diophantine equation

$$ax^2 + by^3 = cz^5, \quad \gcd(x, y, z) = 1$$

in the unknown integers x, y, z . We describe a new algorithm to find all (parameterized) solutions to the equation above. Using this algorithm we are in particular able to show that there exist pairwise coprime nonzero integers a, b, c such that the equation has no solutions, this answers an open question due to Darmon and Granville. (Received August 11, 2008)