"We show that the Cauchy problem for the equation

$$u_{tt} - \Delta u + ue^{u^2} = 0 \text{ on } \mathbb{R} \times \mathbb{R}^2$$

related to the Trudinger-Moser embedding admits a global smooth solution for arbitrary smooth initial data. Previously, Ibrahim, Majdoub, and Masmoudi had obtained well-posedness of this equation for smooth Cauchy data with small energy; moreover, in 2009 I had shown global well-posedness in the case of radial symmetry. The resolution of the general case requires a new approach, which also involves a subtle improvement of the Trudinger-Moser inequality."