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DMITRY E PELINOVSKY* (dmpeli@math.mcmaster.ca), 1280 Main Street West, Hamilton, Ontario L8S 4K1, Canada. *Solitary waves under intensity-dependent dispersion.*

A continuous family of singular solitary waves exists in a prototypical system with intensity-dependent dispersion. The family has a cusped soliton as the limiting lowest energy state and is formed by the solitary waves with bell-shaped heads of different lengths. We show that this family can be obtained variationally by minimization of mass at fixed energy and fixed length of the bell-shaped head. We develop a weak formulation for the singular solitary waves and prove that they are stable under perturbations which do not change the length of the bell-shaped head. Numerical simulations confirm the stability of the singular solitary waves. This is a joint work with P. G. Kevrekidis and R.M. Ross (University of Massachusetts, Amherst). (Received August 17, 2021)