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Nonlinear Scattering of BECs on a Finite Barrier[1] RACHEL R.
MILLER, LINCOLN D. CARR, Colorado School of Mines — We consider the
scattering of a Bose-Einstein condensate (BEC) on a finite barrier. The nonlin-
ear Schrödinger equation (NLS) models the mean field of a BEC. The nonlinearity
gives rise to several interesting physical and mathematical features which are not
present in the linear problem. We present density and transmission plots for sev-
eral physical cases, along with a discussion of these novel features. We also use the
theory to model recent experiments.

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