Numerical solution for Nagumo's equation for the electron density in photorefractive materials FERNANDO MAGAÑA, LAURA O. PALOMARES, J. ADRIAN REYES-CERVANTES, GERARDO J. VAZQUEZ, Instituto de Fisica, UNAM — We study the distribution of the electron density in a photorefractive material, using a set of nonlinear partial differential equations, that describes the physical response of photorefractive systems under inhomogeneous ilumination based on the band transport model, proposed by Kukhtarev et al. (Ferroelectrics, vol. 22, 949 (1979)). Assuming that the electron density only depends of x coordinate and taking a constant external electric field E in the same x coordinate we find that the electron density obeys a Nagumo's equation whose solution is soliton type.

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Date submitted: 30 Nov 2004

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