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Constance M Schober* (cschober@ucf.edu), University of Central Florida, Dept. of Mathematics, Orlando, FL 32816, and **Anna Calini**, College of Charleston, Dept. of Mathematics, Charleston, SC 29424. *Observable and reproducible rogue waves.*

In physical regimes described by the cubic, focusing, nonlinear Schrödinger (NLS) equation, the N -dimensional homoclinic orbits of a constant amplitude wave with N unstable modes appear to be good candidates for experimentally observable and reproducible rogue waves. These homoclinic solutions include the Akhmediev breathers ($N = 1$), which are among the most widely adopted spatially periodic models of rogue waves, and their multi-mode generalizations ($N > 1$), and will be referred to as multi-mode breathers. Numerical simulations and a linear stability analysis indicate that the breathers with a maximal number of modes (maximal breathers) are robust with respect to rather general perturbations of the initial data in a neighborhood of the unstable background. (Received January 27, 2014)