

Spatial rogue waves in photorefractive SBN crystals

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We report on the excitation of large-amplitude waves, with a probability of around 1% of total peaks, on a photorefractive SBN crystal by using a simple experimental setup at room temperature. We excite the system using a narrow Gaussian beam and observe different dynamical regimes tailored by the value and time rate of an applied voltage. We identify two main dynamical regimes: a caustic one for energy spreading and a speckling one for peak emergence. Our observations are well described by a two-dimensional Schrödinger model with saturable local nonlinearity.