

Math Colloquium Series Spring 2022

Thursday Feb 17 12:30-1:30



OSBORNE B138 (in person) & Zoom (online) LIGHT REFRESHMENTS AT 12:15PM

Speaker: Justin Cole, UCCS Math

Transverse Instability of Rogue Waves

Rogue waves, or "freak waves", are large amplitude waves that suddenly appear and then disappear. Originally the subject of folklore, these types of waves have now been observed in numerous physical systems such as water waves and fiber optics. A common rogue wave model is the one space, one time (1+1) nonlinear Schrodinger (NLS) equation and the Peregrine soliton solution which has a peak amplitude three times that of the background. However, in deep open water a more complete description is that of the 2+1 hyperbolic NLS equation with two significant transverse dimensions. It will be shown that the Peregrine soliton is transversely unstable to both long *and* short wavelength perturbations. Moreover, the instability spectrum coincides with that of the background plane wave.

For more info, visit https://math.uccs.edu/research/colloquia