

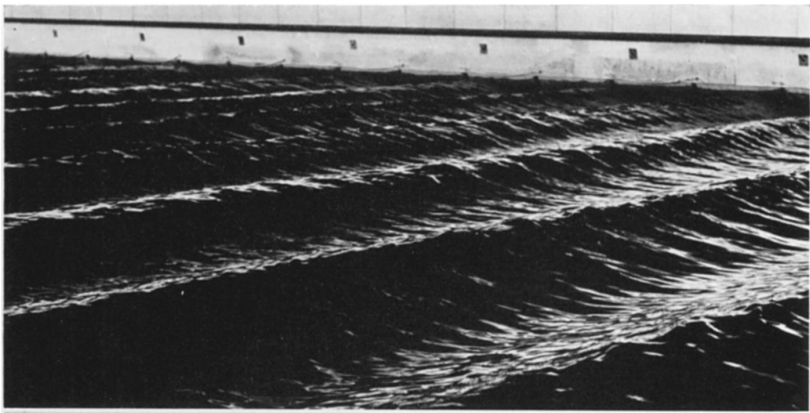
# The Benjamin-Feir instability with frequency-dependent damping: applications to waves in sea-ice

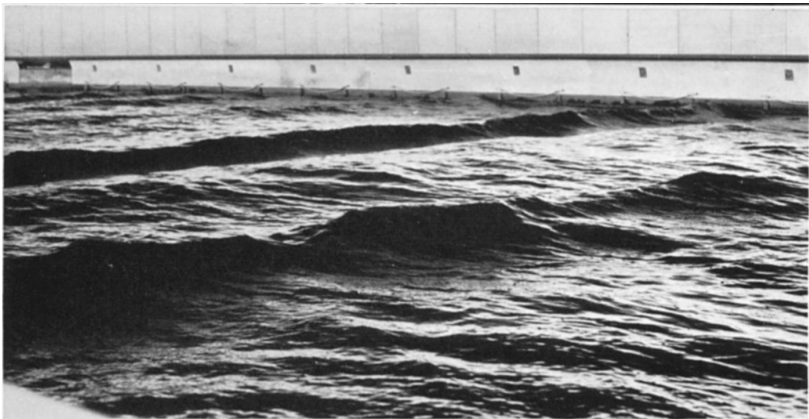
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Raphael Stuhlmeier

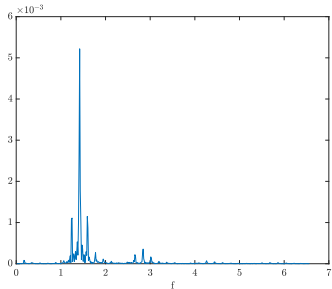
March 18, 2024

Joint work with C. Heffernan, A. Alberello & E. Părău

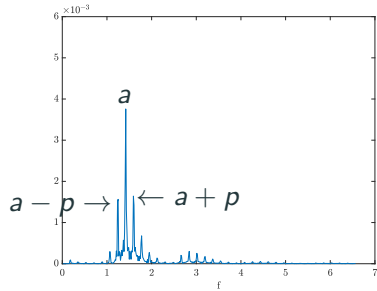
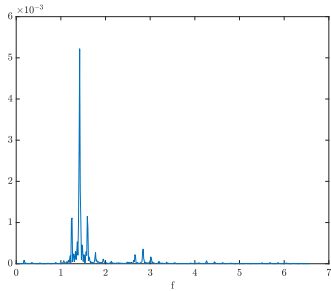




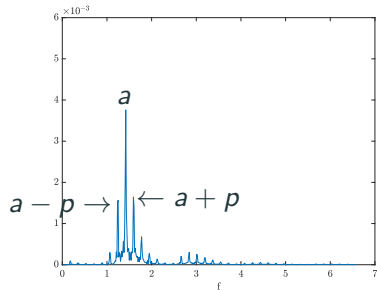
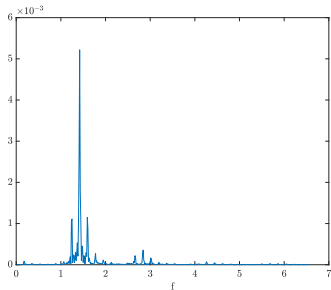
# Benjamin-Feir instability – Fourier amplitude spectra



# Benjamin-Feir instability – Fourier amplitude spectra

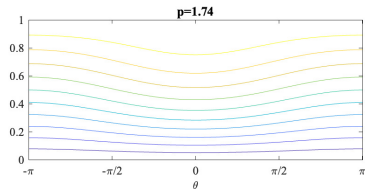
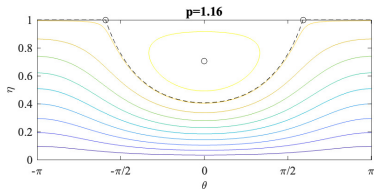
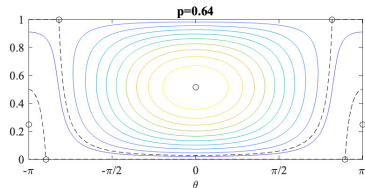
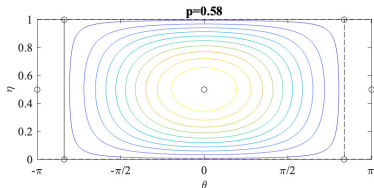
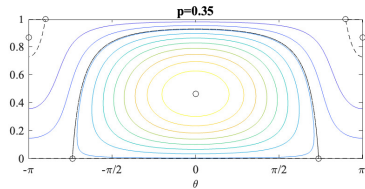
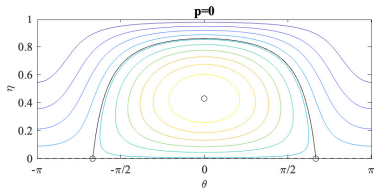


# Benjamin-Feir instability – Fourier amplitude spectra



$$2a = (a + p) + (a - p)$$

# Benjamin-Feir instability – Phase portraits

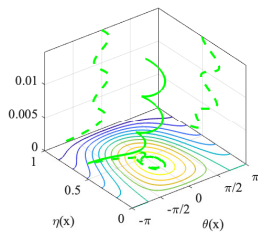
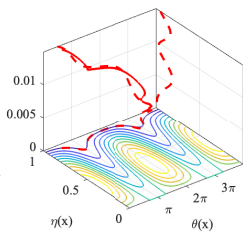
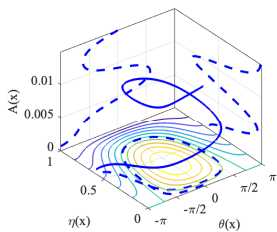




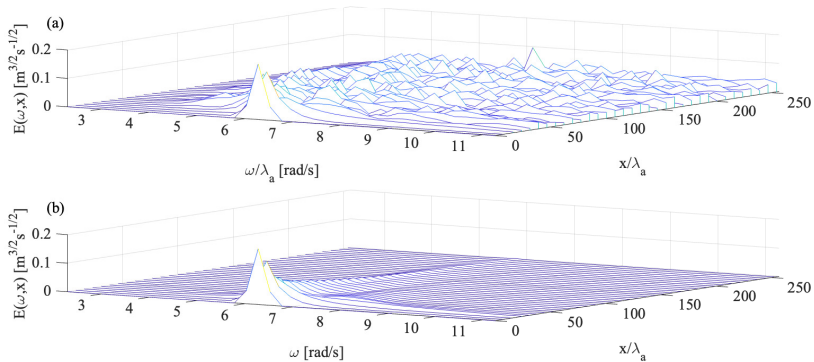
How is the mechanism of Benjamin-Feir instability impacted by frequency dependent damping?



# Damped phase portraits of the BFI



# Fourier spectral evolution of BFI: damped vs. undamped



R. Stuhlmeier, C. Heffernan, A. Alberello & E. Părău,  
*Modulational instability of nonuniformly damped, broad-banded waves: applications to waves in sea-ice*, (under review).