

Instabilities of Stokes Waves

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Abstract

We study periodic traveling waves on the free surface of an ideal 2-dimensional fluid with infinite depth. Stability of such waves is examined by linearizing nonlinear equations of motion around Stokes waves and by studying the resulting eigenvalue problem numerically. In this talk, we demonstrate the spectrum of Stokes waves with various steepness. Additionally, we present the growth rate of the dominant instability and discuss the Benjamin-Feir, high-frequency and superharmonic instabilities associated with these waves.