# Capillary freak waves in He-II as a manifestation of discrete wave turbulent regime

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Two fundamental findings of the modern theory of wave turbulence are

• existence of Kolmogorov-Zakharov power energy spectra (KZ-spectra) in $k$-space, [1],

and

• existence of "gaps" in KZ-spectra corresponding to the resonance clustering, [2].

Accordingly, three wave turbulent regimes can be singled out:

*kinetic* (described by wave kinetic equations and KZ-spectra, in random phase approximation, [3]);

*discrete* (described by a few dynamical systems, with coherent phases corresponding to resonance conditions, [4]);

*mesoscopic* (where kinetic and discrete evolution of the wave field coexist, [5]).

We present an explanation of freak waves appearance in capillary waves in He-II, [6], as a manifestation of discrete wave turbulent regime. Implications of these results for other wave systems are briefly discussed.

## References

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