Small-amplitude solitary waves for the full-dispersion Kadomtsev–Petviashvili equation

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Using constrained minimisation and a decomposition in Fourier space, we prove that the KPI equation modified with the exact dispersion relation from the gravity-capillary water-wave problem admits a family of small solitary solutions, approximating these of the standard KPI equation. The KPI equation, as well as its fully dispersive counterpart, describes gravity-capillary waves with strong surface tension.
This is joint work with Mark Groves, Saarbrücken.