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Global well-posedness for perturbations of the Benjamin-Ono equation on the torus

We prove global-wellposedness in the Sobolev spaces H^s for s>-1/2 for the Benjamin-Ono equation on the torus, perturbed by a class of zero-order Fourier multipliers. Examples of such equations include the periodic intermediate long wave equation. The method consists in using the Birkhoff map, that sends the Benjamin-Ono equation into an infinite system of linear ODEs, and which is used as a nonlinear Fourier transform for the perturbed equation. Then, a-priori relative compactness of trajectories is obtained by showing a-priori estimates on quantities that are conserved by the Benjamin-Ono flow. This work is in collaboration with Thierry Laurens.