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Reflection of internal waves: theory and experiments

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One often refers to the reflection of internal gravity waves on sloping topography to explain mixing phenomenon in the oceanic interior. When the incident angle corresponds to the angle of the slope, the linear theory predicts that the reflected beam has an infinite amplitude. We show analytically how this singularity can be healed when nonlinearity, dissipation and transience are taken into account.

Moreover, we will present results of several laboratory experiments to make quantitative comparisons with theoretical predictions. These experiments (standard and synthetic Schlieren or PIV) conducted either in our laboratory or in the Coriolis plateform in Grenoble allow to exhibit *quantitatively* the role of nonlinearities during the reflection process.