Inelastic Interaction of Solitons for the Quartic gKdV Equation

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The main objective of the course is to present recents work by Yvan Martel and Frank Merle on collision of two solitons for the generalized Korteweg-de Vries equations, and in particular the quartic KdV equation. It is a non integrable equation and no explicit multi-soliton solutions can be found in this case. However, we are able to describe accuretely the interaction of two solitons in two disctinct situations: first, the case where the size of one soliton is small with respect to the other soliton, and second, the case where the two solitons have almost the same size.
Prerequisites. Only basic PDE theory.

References

[1] Y. M , F. M , *Description of Two Soliton Collision for the Quartic gKdV Equation,* arxiv.org/abs/0709.2672.

[2] Y. M , F. M , *Stability of Two Soliton Collision for Nonintegrable gKdV Equations,* Commun. Math. Phys. **286** (2009), 39–79.

[3] Y. M , F. M , *Inelastic Interaction of Nearly Equal Solitons for the Quartic gKdV Equation,* arxiv.org/abs/0910.3204.

[4] Y. M , F. M , *Inelastic Interaction of Nearly Equal Solitons for the BBM Equation,* arxiv.org/abs/0911.0932.