

DREXEL ANALYSIS SEMINAR

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Title: Solution of the Boussinesq equation using evolutionary vessels.

Abstract: In this talk, we present a solution of the Boussinesq equation. The derived formulas include solitons, Schwartz-class solutions and generalized solutions, possessing singularities on a closed set Z of \mathbb{R}^2 (i.e. of the (x, t) -domain). The idea for solving the Boussinesq equation is identical to the (unified) idea of solving the KdV and the evolutionary NLS equations: we use a theory of evolutionary vessels. But a more powerful theory of non-symmetric evolutionary vessels is presented, allowing to achieve precisely four times differentiable with respect to x (generalized) solutions. The scattering theory of Deift–Tomei–Trubovitz for a three-dimensional operator, which is used to solve the Boussinesq equation corresponds to a particular example of this theory.