

**Rahimian, Mohammad; Toomanian, Megerdich; Nadjafikhah, Mehdi**

**Approximate symmetry and exact solutions of the singularly perturbed Boussinesq equation.** (English) Zbl 07261233

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**Summary:** In this paper, the Lie approximate symmetry analysis is applied to investigate new exact solutions of the singularly perturbed Boussinesq equation. The tanh-function method, is employed to solve some of the obtained reduced ordinary differential equations. We construct new analytical solutions with small parameter which is effectively obtained by the proposed method.

**MSC:**

**35B06** Symmetries, invariants, etc. in context of PDEs

**76M60** Symmetry analysis, Lie group and Lie algebra methods applied to problems in fluid mechanics

**58J70** Invariance and symmetry properties for PDEs on manifolds

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**Keywords:**

singularly perturbed Boussinesq equation; analytical solutions; approximate symmetry; approximate invariant solutions

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**References:**

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