1016-35-76   **Vladimir S. Novikov*** (`V.Novikov@kent.ac.uk`), IMSAS, University of Kent, CT2 7NF
Canterbury, Kent, England, and **Alexander Mikhailov** and **Jing Ping Wang**. *On classification
of integrable non-evolutionary equations.*

We study partial differential equations of second order (in time) that possess a hierarchy of infinitely many higher symmetries. The famous Boussinesq equation is a member of this class after the extension of the differential polynomial ring. We develop the perturbative symmetry approach in symbolic representation. Applying it, we classify the integrable equations of 4th and 6th order (in the space derivative) equations, as well as we have found three new 10th order integrable equations. To prove the integrability we provide the corresponding bi-Hamiltonian structures and recursion operators. (Received February 01, 2006)