

INTERNATIONAL BIWEEKLY ONLINE SEMINAR ON ANALYSIS, DIFFERENTIAL EQUATIONS AND MATHEMATICAL PHYSICS

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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On the formulation of a Bäcklund transformation in the Wahlquist-Estabrook sense for extensions of the Korteweg-de Vries (KdV) equation

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We present a local Bäcklund Wahlquist-Estabrook (WE) transformation both for a supersymmetric Korteweg-de Vries (KdV) equation and for a KdV equation with values on a Cayley-Dickson algebra. As in the scalar case, such type of transformation generates infinite hierarchies of solutions and also implicitly gives the associated (local) conserved quantities. A nice property is that every of such hierarchies admits a nonlinear superposition principle, starting for an initial solution, including as a particular case the multisolitonic solutions of the systems. We discuss the symmetries of the systems and we present in an explicit way its local conserved quantities with the help of the associated Gardner transformation.

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Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



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