

**Ludu, Andrei****Differential geometry of moving surfaces and its relation to solitons.** (English) Zbl 1247.37081  
*J. Geom. Symmetry Phys.* 21, 1-28 (2011).

The author presents a survey of the geometrical theory of motion of curves and surfaces in the three dimensional space, and its relations with nonlinear integrable systems. The working frame is the Cartan theory of moving frames together with a Cartan connection. The formalism for the motion of curves is constructed in the Serret-Frenet frames as elements of the bundle of adapted frames. The motion of surfaces is investigated in the Gauss-Weingarten frame. The main aim is to present relations between types of motions and nonlinear equations and their soliton solutions.

Reviewer: Ricardo Miranda Martins (Campinas)

**MSC:**

- [37K40](#) Soliton theory, asymptotic behavior of solutions of infinite-dimensional Hamiltonian systems
- [37K15](#) Inverse spectral and scattering methods for infinite-dimensional Hamiltonian and Lagrangian systems
- [53C44](#) Geometric evolution equations (mean curvature flow, Ricci flow, etc.) (MSC2010)
- [37K30](#) Relations of infinite-dimensional Hamiltonian and Lagrangian dynamical systems with infinite-dimensional Lie algebras and other algebraic structures

Cited in 1 Review**Keywords:**

solitons; moving surfaces; Cartan theory