Beyond recursion operators

Yvette Kosmann-Schwarzbach

XXXVI Workshop on Geometric Methods in Physics

Białowieża, July 2-8, 2017

Abstract. After brief historical remarks on the Nijenhuis torsion of (1,1)-tensors on manifolds and on the lesser-known Haantjes torsion, we shall show how the Haantjes manifolds of Magri and the Poisson–Haantjes structures of Tempesta and Tondo generalize the classical approach to integrable systems in the bi-hamiltonian and Poisson–Nijenhuis formalisms, replacing the sequence of powers of the recursion operator by a family of commuting Haantjes operators. We shall survey some applications of these new geometric methods.