Algebraic structures related to integrable differential equations

Vladimir Sokolov

Abstract. This survey is devoted to algebraic structures related to integrable ODEs and evolution PDEs. A description of Lax representations is given in terms of vector space decomposition of loop algebras into direct sum of Taylor series and a complementary subalgebras. Examples of complementary subalgebras and corresponding integrable models are presented. In the frame of the bi-Hamiltonian approach, compatible associative algebras related affine Dynkin diagrams are considered. A bi-Hamiltonian origin of the classical elliptic Calogero-Moser models is revealed.