

Research directions 2014

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Current

- Exactly solvable (integrable) models of quantum field theory.
- Nonlinear gauge theories in AdS space-time and conformal symmetry.
- noninvertible generalization of braid groups.
- new brackets and quantization.
- New spontaneous supersymmetry breaking and Standard Model.
- Gravity as a nonlinear gauge theory.
- Clairaut formalism and CFNS Decomposition.
- Pauli-Fierz models in multigravity.
- Quantization of constrained systems.
- polyadic systems, representations and quantum groups.
- Superanalogs and ternary analogs of C^* -algebras.
- Ternary fields.
- Ternary Cuntz algebras.
- Super Cuntz algebras.
- One-sided Hopf algebras, quantum groups and Pierce decomposition.
- Singular theories, partial Hamiltonian formalism and new brackets.
- Noncommutative variables, cluster algebras and Pierce decomposition.
- New trends in n -ary groups.
- Representations and quivers.
- Weak Hopf algebras.
- New actions of quantum algebras on quantum spaces.
- Set theoretical solutions of graded Yang-Baxter and tetrahedron equations.

Old (*already started, some papers published, unfinished*)

- Von Neumann regular supermanifolds and categories.
- Ternary structures in quantum groups and operator algebras.
- Mathematical description of DNA sequence structure.
- Differential calculi on finite groups.