

## PREFACE

These Conference Proceedings contain the contributions and lecture courses presented at the XIV<sup>th</sup> International Conference on Geometry, Integrability and Quantization which took place in the gorgeous geographical frame of the Saints Constantine and Elena resort, on the Black Sea coast, during June 8-13, 2012.

Already a long tradition, and a milestone among all international fundamental, theoretical and mathematical physics conferences around the world the event was organized again in one continuous session, and no parallel ones. In this way the conference provided a good setting for vivid discussions and interactions between participants and lecturers. The topics, clearly delimited, and copiously fulfilled by interesting and professional talks, yet left enough room for diversity and collateral contributions. Some of the original slides of the talks can be found at the internet site of the conference.

The organizing committee (pretty international one) succeeded to invite 34 talks, including the two plenary ones with participants from Bulgaria, Czech Republic, France, Italy, Japan, Poland, Portugal, Romania, Russia, South Africa, Turkey, and USA. One quarter of the talks were dedicated to nonlinear systems and integrability. Among the topics we mention talks on the derivative NLS, harmonic analysis on Lagrangian manifolds of integrable Hamiltonian systems, three-wave resonant interaction equations, localized finite energy solutions and solitons in dissipative media. Within the interesting open problem on methods approaching integrable systems we mention talks on recursion operator the CBC system, integro-differential Lax representations, etc.

The rest of three quarters of talks had topics equally divided in five other areas (each holding 16% of the number of talks), each area covered by about five talks. Next well represented area was related to algebra, algebraic geometry, groups and symmetries. There were talks devoted to the exponential maps on  $SO(n)$  and  $SE(n)$ , groupoids and inverse semigroups associated to W-algebras, star products, moving frames and Lie groups in general. Among examples from physics we enumerate a model for the membrane shape, and for mixing of fluids.

The other six of the talks were populated by the uncertainty principle in general relativity, pseudo-Riemannian metrics, spinoptics in gravitational field, fields of linear frames and gauge gravitation, and the MIC-Kepler problem. Another sixth part of talks were devoted to geometry. Here we mention presentations on multiparameter contact transformations, the Lawson correspondence for minimal surfaces, f-biharmonic maps, algebraic topology of spherical isoparametric hypersurfaces, and PMC submanifolds in product spaces.