

Seminar: "Geometry&Physics", DFT (IFIN-HH)
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Location: DFT seminar room, IFIN-HH, Magurele

Date: Friday, July 29, 2016, 11:00 am

Title: **An affine deformation of the quantum cohomology ring of flag manifolds and periodic Toda lattice**

Speaker: **Dr. Mihalcea Constantin-Leonardo** (Virginia Tech University)

Abstract: "A theorem of B. Kim identified the relations of the quantum cohomology ring of the (generalized) flag manifolds G/B with the conserved quantities for the Toda lattice. M. Guest and T. Otofujii, and L. Mare, showed that if a similar quantum cohomology ring exists for affine flag manifolds, then its relations will be determined by the periodic Toda lattice. I will show how to construct a quantum product which deforms the usual quantum cohomology product and which depends on an additional affine quantum parameter. It turns out that the conserved quantities of the periodic Toda lattice give the ideal of relations in the new ring. The construction involves a generalization of the notion of "curve neighborhoods" of Schubert varieties, which were defined and studied earlier by the speaker in several joint works with A. Buch, P.E. Chaput, and N. Perrin. It also requires a generalization of the "Givental formalism" (quantum differential equations, a flat connection etc) to this case. The current project is a joint work with Liviu Mare. "