

*Seminar:* "Geometry&Physics@DFT"

*Location:* DFT seminar room (IFIN-HH),  
(<http://events.theory.nipne.ro/gap/index.php/seminar>)  
(<http://www.nipne.ro/indico/categoryDisplay.py?categId=5>)

*Date:* Friday, 5 September 2014, 11 am

*Title:* **On Riemann-Hilbert Problems and new Soliton equations**

*Speaker:* **Prof. Vladimir S. Gerdjikov** (INRNE, Bulgarian academy of sciences, Sofia)

*Abstract:* We start with a Riemann-Hilbert Problem (RHP) with canonical normalization whose sewing functions depends on several additional variables. Using Zakharov-Shabat theorem we are able to construct a family of ordinary differential operators for which the solution of the RHP is a common fundamental analytic solution, see [1, 2]. This family of operators obviously commute. Thus we are able to construct new classes of integrable nonlinear evolution equations.

## References

- [1] V. S. Gerdjikov. On new types of integrable 4-wave interactions. AIP Conf. proc. **1487** pp. 272-279; (2012). doi:<http://dx.doi.org/10.1063/1.4758968> (8 pages). Proceedings of AMITANS-4 conference. **arXiv:1302.1116**.
- [2] V. S. Gerdjikov, A B Yanovski. Riemann-Hilbert Problems, families of commuting operators and soliton equations Journal of Physics: Conference Series **482** (2014) 012017 doi:[10.1088/1742-6596/482/1/012017](https://doi.org/10.1088/1742-6596/482/1/012017)