2019年度研究活動報告

Articles

M. A. Guest and N.-K. Ho, Kostant, Steinberg, and the Stokes matrices of the tt*-Toda equations, Selecta Math., published online 2019

M. A. Guest, A. R. Its, and C.-S. Lin, Isomonodromy aspects of the tt* equations of Cecotti and Vafa III. Iwasawa factorization and asymptotics, Commun. Math. Phys., 374 (2020) 923-973

Principal talks

The tt* equations: monodromy-preserving deformations (Painleve theory) and DPW (harmonic map theory), 66th Geometry Symposium, Nagoya University, 2019/8

A loop group approach to finding global solutions of the tt* equations, International conference Integrable Systems and Harmonic Maps, Technical University of Vienna (Austria), 2019/9

Polytopes, supersymmetry, and integrable systems, Colloquium, Indiana University Purdue University Indianapolis (USA), 2020/3

International conferences co-organized

2nd Taiwan-Japan Joint Conference on Differential Geometry at the NCTS, National Taiwan University, Taipei, November 2019/11

3rd International Workshop on the Geometry of Submanifolds and Integrable Systems at OCAMI, Osaka City University, 2019/12

Research summary

I am studying Lie-theoretic and symplectic properties of moduli spaces of solutions of the tt*-Toda equations. This a nonlinear p.d.e. which is important in geometry (harmonic maps) and supersymmetric quantum field theory (quantum cohomology). In joint work with Nan-Kuo Ho (National Tsing-Hua University, Taiwan) I have computed the Stokes data of the global solutions of the tt*-Toda equations in Lie-theoretic terms. In joint work with Alexander Its (Indiana University Purdue University Indianapolis. USA) and Chang-Shou Lin (National Taiwan University, Taiwan) I have obtained complete asymptotic data and connection formulas for these global solutions.