



HACETTEPE ÜNİVERSİTESİ MATEMATİK BÖLÜMÜ
GENEL SEMİNERİ
(HACETTEPE MATHEMATICS GENERAL SEMINAR)

Tarih (Date) : 09.02.2015, Pazartesi (Monday)

Saat (Time): 13:00

Yer (Place): Yaşar ATAMAN Seminer Salonu

Konuşmacı (Speaker): Doç. Dr. Burcu Silindir Yantır (İzmir Ekonomi Üniversitesi)

Başlık (Title) : Integrability, integrable q -difference equations and extensions

Özet (Abstract) : We investigate the notion of integrability by discussing in several different definitions. We present the integrability of q -difference equations in the light of existence of multi-soliton solutions. Moreover, we constitute a unifying framework for q -discrete equations and their multi-soliton solutions that comprises various q -difference type of soliton equations such as sine-Gordon, KdV and Toda equations. For this purpose, we present a generic equation and develop three- q -soliton solutions, which are expressed in the form of polynomials in power functions. We conjecture the nonexistence of other unifying approaches to study integrable equations on quantum numbers or on any time scales via Hirota perturbation. Finally, we also present a natural extension of nonlinear integrable systems by introducing a new vector product on the n -dimensional Euclidean space.

References:

- [1] M. Blaszak, M. Gürses, B. Silindir, B.M. Szablikowski, Integrable discrete systems on \mathbb{R} and related dispersionless systems, J. Math. Phys. 49 (2008) 072702.
- [2] B. Silindir, Soliton solutions of q -Toda lattice by Hirota Direct Method, Advances in Difference Equations. 2012:121 (2012).
- [3] M. Blaszak, B. Silindir, B.M. Szablikowski, Construction and separability of nonlinear soliton integrable couplings, Applied Math. and Comput. 219, 2012.
- [4] B. Silindir, D. Soyoğlu, On unification of integrable q -difference soliton equations, submitted.

NOT: Konuşma sonunda çay ve pasta ikramı olacaktır.

(P.S. Tea and cookies will be served after the talk.)