Progress in the synthesis of integrabilities arising from gauge-string duality

2014.2.28

Program

3/4(Tue) (L x 3, S x 4)		3/5(Wed) (L x 2, S x 6)		3/6(Thur) (L x 2, S x 7)		3/7(Fri) (L x 1, S x 5)	
13:00 - 13:50 [50]	Marshakov	9:00 - 9:50 [50]	Yamada	9:00 - 9:50 [50]	Taki	14:00 - 14:25	Sugawara
13:50 - 14:15	Gavrylenko	9:50 - 10:15	Ito	9:50 - 10:15	Asano	14:25 - 14:50	Sakai
14:15 - 14:40	Yoshioka	10:15 - 10:40	Locke	10:15 - 10:40	Ohta	14:50 - 15:15	Kanayama
(25 minutes break)		(30 minutes break)		(30 minutes break)		15:15 - 15:40	Irie
15:05 - 15:55 [50]	Matsuo	11:10 - 11:35	Sato	11:10 - 11:35	Okuyama	(30 minutes break)	
15:55 - 16:20	Nakatsu	11:35 - 12:00	Suzuki	11:35 - 12:00	Moriyama	16:10 - 16:35	Oota
(25 minutes break)				(Lunch)		16:35 - 17:25 [50]	Morozov
16:45 - 17:35 [50]	Yoshida	19:30 - 20:20 [50]	Komatsu	13:30 - 14:55	Imamura		
17:35 - 18:00	Kawaguchi	20:20 - 20:45	Yamaguchi	13:55 - 14:20	Honda		
		20:45 - 21:10	Kawai	14:20 - 14:45	Sugishita		
				(30 minutes break)			
				15:15 - 16:05 [50]	Mironov		

TITLE 2014.2.28

==========

Morozov	On knot polynomials
Mironov	Knot polynomials: generic structures and equations
Marshakov	Tau-functions for quiver gauge theories
Gavrylenko	Residue formulas for prepotentials, instanton expansions and conformal blocks
Ito	ODE/IM correspondence and modified affine Toda field equations: I
Nakatsu	Gauge instantons in noncommutative space
Sato	Remainder function of N=4 SYM and massless TBA
Oota	TBA
Ohta	Exact Results in Supersymmetric Lattice Gauge Theories
Moriyama	ABJ Matrix Model and Fractional Branes
Sakai	Integrability of BPS equations in ABJM theory
Yoshida	Recent progress on q-deformations of the AdS_5 x S^5 superstring
Okuyama	Exact results on the ABJ theory
Irie	On spectral p-q duality in Yang-Lee minimal string theory
Yoshioka	q-Virasoro algebra and parafermion
Kawaguchi	A Jordanian deformation of AdS space in type IIB supergravity
Locke	ODE/IM correspondence and modified affine Toda field equations: II
Kanayama	BPS equations in deformed N=4 SYM theory
Komatsu	Three-point functions in N=4 SYM at strong coupling
Yamada	Quantum Lax pairs for Painlev\'e systems and their solutions
Matsuo	Instanton partition function, DDAHA and recursion formula
Taki	5d SCFTs, 5-brane webs and their duality
Honda	Higgs branch localization of 3d N=2 theories
Suzuki	Exact spectrum of tachyons in AdS/CFT
Kawai	Schwinger pair production rate in confining theories via holography
Yamaguchi	Wilson surface and AdS_7/CFT_6 correspondence
Sugishita	Exact results in supersymmetric field theories on manifolds with boundaries
Asano	Emergent bubbling geometries through the localization method
Imamura	Factorization of S^3/Z_n partition function
Sugawara	Some Topics on the Modular Completions in SL(2)/U(1) Supercoset Theory

ABSTRACT

==========

Yamaguchi

Title: Wilson surface and AdS_7/CFT_6 correspondence

Abstract:

We consider the correspondence between M-theory on AdS_7 x S^4 and
6d (2,0) theory. We focus on the expectation values of Wilson surfaces
of anti-symmetric representations and symmetric representations.
In the M-theory side they correspond to M5-branes wrapping on AdS_3 x S^3.
Recently it have been shown that these expectation values are expressed in
terms of the Chern-Simons matrix model by localization in 5d maximally
supersymmetric Yang-Mills theory. We use this result and evaluate the
expectation values in the M-theory side and the CFT side, and find the perfect agreement.

Komatsu

Title: Three-point functions in N=4 SYM at strong coupling

Abstract:

I will explain the integrability-based method to compute three-point
functions in the so-called SU(2)-sector of N=4 SYM at strong coupling.
Owing to the AdS/CFT correspondence, such computation can be performed
by evaluating the area of the string worldsheet in $AdS_3 \times S^3$
spacetime plus the boundary terms which originate from the vertex
operators. The resultant expression is unexpectedly similar to
the one obtained in the gauge theory at weak coupling. Time permitting, I
will also mention the application of this method to the classical Liouville field theory.

Okuyama

Title: Exact results on the ABJ theory

Abstract:

We exactly compute the partition function of ABJ theory on S^3 and
study instanton effects in the dual M-theory on AdS_4 x S^7/Z_k with discrete torsion.

Irie

Title: On spectral p-q duality in Yang-Lee minimal string theory

Abstract:

We discuss non-perturbative completions in Yang-Lee minimal string
theory and show how spectral p-q duality acts on them.

Yamada

Title: Quantum Lax pairs for Painlev\'e systems and their solutions

Abstract:

I will consider some properties of quantum Lax pairs for Painlev\'e
systems introduced in arXiv:1206.5963[math-ph]. Two kinds of solutions
for the quantum Lax linear problems: (1) integral solution (2) series
solutions related to AGT, will be given.

Imamura
Title: Factorization of $S^{\wedge 3}/Z_n$ partition function

Abstract:
We investigate $S^{\wedge 3}/Z_n$ partition function of 3d N = 2 supersymmetric field theories. In a gauge theory the partition function is the sum of the contributions of sectors specified by holonomies, and we should carefully choose the relative signs among the contributions. We argue that the factorization to holomorphic blocks is a useful criterion to determine the signs and propose a formula for them.

Sakai
Title: Integrability of BPS equations in ABJM theory

Abstract:
I will discuss BPS equations which determine the configuration of a bound state of M2-branes and M5-branes preserving half of the supersymmetries in Aharony-Bergman-Jafferis-Maldacena (ABJM) theory. Recently we found that the BPS equations are classically integrable, showing that they admit a Lax representation. In this talk, I will explain the integrable structure of the BPS equations and how to construct solutions by making use of it. (This talk is based on the work arXiv:1308.3583 in collaboration with S. Terashima.)

Suzuki
Title: Exact spectrum of tachyons in AdS/CFT

Abstract:
The energy spectrum of open string tachyons in curved spacetimes is less well-understood than in the flat spacetime.
We consider an open string stretching between a giant-graviton D-brane and its anti-D-brane in AdS_5xS^5, and study its spectrum using integrability methods and perturbative calculation in N=4 SYM.
By solving the boundary thermodynamic Bethe ansatz (BTBA) equations, we find an indication that states of N=4 SYM turn into tachyonic at finite coupling where the total energy of the corresponding string becomes zero.

Nakatsu
Title:
Gauge instantons in noncommutative space

Abstract:
The Atiyah-Drinfel-Hitchin-Manin (ADHM) construction of gauge instantons in noncommutative space (NC space),
together with the inverse construction, is exploited by further inventing their operator formulation
and its regularization on the Fock spaces. Thereby, equivalence of the two descriptions of the moduli space
of NC instantons is shown. Application to related topics is also discussed.
This is based on the work with Masashi Hamanaka.