

## Monday:

1. Andrey Marshakov

2. Hiroaki Kanno

«Instanton counting and the Whittaker vector of the  $W$ -algebra»

*Abstract:*

The moduli space of  $SU(N)$  instantons in the presence of a surface operator can be described by the representations of the so-called chain-saw quiver. Consequently one can write down the instanton partition function as a summation over the fixed point contributions labeled by Young diagrams. We argue that the instanton partition function agrees with the inner product of coherent states (Whittaker vectors) in the Verma module.

3. Kentaroh Yoshida

«Hybrid classical integrability in squashed sigma models»

*Abstract:*

The  $SU(2)_L$  Yangian and  $q$ -deformed  $SU(2)_R$  symmetries are explicitly shown in a two-dimensional sigma model defined on a three-dimensional squashed sphere. These symmetries enable us to develop the two descriptions to represent its classical dynamics, 1) rational and 2) trigonometric descriptions. The former 1) is based on the  $SU(2)_L$  symmetry and the latter 2) comes from the broken  $SU(2)_R$  symmetry. Each of the Lax pairs constructed in both ways leads to the same equations of motion. We show that the two descriptions are related one another through a non-local map.

4. Andrey Morozov

5. Yegor Zenkevich

## Tuesday:

1. Maxim Kazarian

2. Kazutoshi Ohta

«Volume of Moduli Space of Vortex Equations and Localization»

*Abstract:*

We evaluate volume of moduli space of BPS vortices on a compact Riemann surface by using topological field theory and localization technique developed by Moore, Nekrasov and Shatashvili. We apply this technique to Abelian (ANO) vortex and show that the volume of moduli space agrees with the previous results obtained by integrating over the moduli space metric. We extend the evaluation to non-Abelian gauge groups and multi-flavors. We also compare our results with the volume of the Kahler quotient space inspired by the brane configuration.

3. Alexei Sleptsov

4. Aleksandra Anokhina

5. Sergey Mironov

## Wednesday:

1. Sanefumi Moriyama

Title:

«Summing Up All Genus Free Energy of ABJM Matrix Model»

*Abstract:*

The localization technique allows us to compute the free energy of the  $U(N)_k \times U(N)_{-k}$  Chern-Simons-matter theory dual to type IIA strings on  $AdS_4 \times CP^3$  from weak to strong 't Hooft coupling  $\lambda = N/k$  at finite  $N$ . We study further the free energy at large 't Hooft coupling with the aim of testing AdS/CFT at the quantum gravity level and, in

particular, sum up all the  $1/N$  corrections, apart from the worldsheet instanton contributions. The all genus partition function takes a remarkably simple form -- the Airy function,  $\text{Ai}(k^{4/3} \lambda_r)$ , with the renormalized 't Hooft coupling  $\lambda_r$ .

2. Sergey Natanzon
3. Dmitry Vasiliev
4. Andrei Zotov
5. TBA

**Thursday:**

1. Takahiro Shiota
2. Takeshi Oota
3. Alexei Rosly
4. Leonid Grechishnikov
5. TBA

**Friday:**

1. Takuya Matsumoto
2. Sergey Lando
3. Alexander Popolitov
4. Evgeny Krylov
5. Philipp Burda