

Final Report on short visit to Nordita Institute, Stockholm

I was in Nordita from 4 to 12 February 2012. We continued our work with Prof. Konstantin Zarembo on the calculation of correlators in supersymmetric Yang-Mills (SYM) theories. We are trying to use the results recently obtained from integrability of $N=4$ SYM theory to calculate the 3-point correlators in SYM theories obtained by small marginal deformations of the action of $N=4$ SYM, such as the Leigh-Strassler deformation.

We also discussed various generalizations of the AdS/CFT Y-system. This system of equations calculates the exact spectrum of anomalous dimension in maximally supersymmetric $N=4$ SYM theory and on its AdS dual – the superstring on $AdS_5 \times S^5$ background. We are trying to generalize it to similar theory in 2 dimensions, dual to the string on $AdS_2 \times S^2 \times T^6$ background. We have had useful discussions with Serguey Alexandrov (Montpellier, France) visiting Nordita on the same NSF program. He uses similar Y-systems in his study of string compactifications.

We also attended a few talks on the conference “Common trends in gauge theory, string theory and integrability” held that week in Nordita.