

SEMPARIS – Séminaires en région parisienne

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Séminaire commun LPTENS/LPTHE

Mardi 29 Mai 2018, 11 :30

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Domaines : hep-th

Titre : *Gravity dual of 2d $N=(2,2)^*$ gauge theories and integrable models*

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Résumé : *Nekrasov and Shatashvili have found a large class of gauge theories in the Omega background, which are dual to some quantum integrable models. Later, the string dual was constructed by Hellerman, Orlando and Reffert in a series of papers. Alternatively, one can also construct the gravity dual of these theories using the gauge/gravity correspondence. In this talk, we will discuss the simplest example, the gravity dual of the 2d $N=(2,2)^*$ supersymmetric Yang-Mills (SYM) theory, which can be viewed as the mass deformation of the 2d $N=(4,4)$ SYM theory and is dual to the simplest integrable model, the nonlinear Schrödinger equation. The technique is similar to the construction of the 4d $N=2^*$ SYM theory. Eventually, we will identify the mass deformation parameter with the twisted mass and find its counterpart on the gravity side, and we will also see the correspondence between solitons in the integrable model and D-branes. Possible generalizations to the full Nekrasov-Shatashvili duality will also be discussed. This talk is based on the paper arXiv :1706.09016 and some work in progress.*
