SEMPARIS – Séminaires en région parisienne

http ://string.lpthe.jussieu.fr/semparis/

Workshop or Conference

Jeudi 17 Août 2017, 09 :30
LPTENS, Room Conf. IV(Workshop on "Exceptional and ubiquitous Painlevé equations for Physics". Please see webpage https ://indico.in2p3.fr/event/14720/)
Domaines : math-ph

Titre : *Painlevé functions, Fredholm determinants and combinatorics*

Orateur : **Oleg Lisovyi (Université de Tours)**

Résumé : *I am going to explain the explicit construction of general solutions to isomonodromy equations, with the main focus on the Painlevé VI equation. I will start by deriving a Fredholm déterminant representation of the Painlevé VI tau function. The corresponding integral operator acts in the direct sum of two copies of* $L^2(S^1)$*. Its kernel is expressed in terms of hypergeometric fundamental solutions of two auxiliary 3-point Fuchsian systems whose monodromy is determined by the monodromy of the associated linear problem via a decomposition of the 4-punctured sphere into two pairs of pants. In the Fourier basis, this kernel is given by an infinite Cauchy matrix. I will explain how the principal minor expansion of the Fredholm determinant yields a combinatorial series representation for the general solution to Painlevé VI in the form of a sum over pairs of Young diagrams. The latter series coincides with the dual Nekrasov partition function of the* $\mathcal{N}=2$ $N_f=2$ $SU(2)$ *gauge theory in the self-dual* Ω*-background.*