Contribution ID: **33** Type: **Oral talk**

Isomonodromic tau function for Painleve I equation via irregular conformal blocks of rank 5/2

Wednesday, 11 June 2025 17:00 (20 minutes)

Recently, there were developed notion of irregular conformal blocks in two dimensional conformal field theory. It is believed that the conformal blocks are related to the isomondromic tau functions of Painvleve equations. I will review how it works on the concrete example of Painleve I equation. The main idea is that the isomondromic tau function of Painleve I equation is presented in the form of Fourier series (Zak transform). Its main building block admits several conjectural interpretations, such as the partition function of an Argyres-Douglas gauge theory, the topological recursion partition function for the Weierstrass elliptic curve, and a 1-point conformal block on the Riemann sphere with an irregular insertion of rank 5/2. I will focus on the algebraic construction of the rank 5/2 Whittaker state for the Virasoro algebra.

Primary author: ZHURAVLOV, Yurii (Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine)

Co-authors: Dr IORGOV, Nikolai (Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine); Dr LISOVYY, Oleg (Institut Denis-Poisson, Université de Tours); Dr IWAKI, Kohei (The Graduate School of Mathematical Sciences, The University of Tokyo)

Presenter: ZHURAVLOV, Yurii (Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine)

Session Classification: Mathematical Physics

Track Classification: Mathematical Physics