



Newsletter from Philippe Meyer Institute for Theoretical Physics

February 2021



The Philippe Meyer Prize in Theoretical Physics 2020 has been awarded to **Adam NAHUM**, University of Oxford, for his ground-breaking contributions to the dynamics of non-integrable quantum many-body systems, in particular through the study of random quantum circuits. He will join our Department in October 2021 as Research Director of the C.N.R.S..

Philippe Meyer Prize for Theoretical Physics 2020



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Denis KARATEEV joined us October 1st, 2020

Denis KARATEEV joined the Institute in autumn 2020 after a postdoc at the Fields and Strings Laboratory at EPFL (Lausanne, Switzerland).

He has obtained his doctoral degree in 2017 from SISSA (Trieste, Italy) under the supervision of Marco Serone.

His research is focused on developing non-perturbative methods for studying quantum field theories (QFTs) in general numbers of dimensions such as the conformal and the S-matrix bootstrap. The former allows to put bounds (numerical and analytical) on the space of conformal field theories (CFTs) which describe fixed points of QFTs. In rare cases one is also able to isolate a particular CFT model and solve it numerically. The S-matrix bootstrap allows to study QFTs (only those which can be fully described by the asymptotic states) away from its fixed points and allows to put bounds on the inner product of various asymptotic states, e.g. the 2 to 2 S-matrix.



Yifei HE joined us January 1st, 2021

Yifei HE received her PhD from Purdue University in August 2018 and worked at IPhT Saclay as a postdoc researcher through December 2020.

Her research has been focused on using the bootstrap approach to study strongly coupled field theories, which have broad applications to particle and statistical physics. She has used the S-matrix bootstrap to map out the space of theories describing two-dimensional particle scattering with $O(N)$ global symmetry. More recently, She has used the conformal bootstrap approach to determine correlation functions in two-dimensional critical Potts model and clarified its logarithmic CFT structure. She is currently exploring further aspects on conformal bootstrap critical geometrical models.

On the one hand, she is studying two-dimensional percolation and polymer logarithmic CFT with central charge $c=0$.

On the other hand, she is also generalizing the study to three-dimensional critical geometrical models.



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