New connections between physics and number theory
Workshop at the Pollica Physics Centre
5-16 June, 2023

List of contributions

Francis Brown: *Amplitudes for mathematicians*

I will try to give a brief overview of the landscape of the areas of physics which now go under the name of 'amplitudes', and how they connect with mathematics and especially number theory. After that I can either focus on the mathematics which underlies Feynman integrals (locally symmetric spaces) or string perturbation theory (moduli spaces of curves), depending on the audience's preference.

Alejandra Castro: *Designing Gravity via Symmetric Product Orbifolds*

Matthew Emerton: *An introduction to the categorical Langlands program*

Melissa Emory: *A Multiplicity One Theorem for General Spin Groups*

Amanda Folsom: *Quantum Jacobi forms, partial theta functions, qseries, and applications*

Matthias Gaberdiel: *An exact AdS/CFT duality*

Wee Teck Gan: *Relative Langlands duality*

Terry Gannon: *Hypergroup moonshine*

Rajesh Gopakumar: *Gauge-String Duality and Arithmetic*

Kim Klinger-Logan: *A shifted convolution problem arriving from physics*

Stephen Kudla: *Indefinite theta series for N-gons and other figures*

Spencer Leslie: *Endoscopy in the relative Langlands program*

Manish Patnaik: *Borel-Serre type compactifications for loop groups*

Boris Pioline: *Counting Calabi-Yau black holes with (mock) modular forms*

Siddhartha Sahi: *Towards a classification of orthogonal hypergeometric polynomials*

Oliver Schlotterer: *Topics in iterated integrals*

Rudolfs Treilis: *Resurgent analysis of generalised Eisenstein series in string theory*

Don Zagier: *A problem of number theory with surprising numerical aspects*

Federico Zerbini: *Higher-genus analogues of polylogarithms*