# SEMPARIS – Séminaires en région parisienne

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## Seed Seminar of Mathematics and Physics

**Mercredi 6 Novembre 2024, 16 :30**
IHP, Maryam Mirzakhani (a.k.a. Salle 201 on 2nd floor)( Kick-off event for the trimester "New trends in QFT, modularity, resurgence". To attend in-person, register at : indico.math.cnrs.fr/event/13003/registrations. )
Domaines : math-ph

Titre : *The arithmetic of resurgent topological strings*

Orateur : **Claudia Rella ( IHES )**

Résumé : *Quantising the mirror curve to a toric Calabi-Yau threefold gives rise to quantum operators whose fermionic spectral traces produce factorially divergent series in the Planck constant and its inverse. These are captured by the Nekrasov-Shatashvili and standard topological strings via the TS/ST correspondence. In this talk, I will discuss the resurgence of these dual asymptotic series and present an exact solution for the spectral trace of local* $P^2$*. A full-fledged strong-weak symmetry exchanges the perturbative/nonperturbative contributions to the holomorphic and anti- holomorphic blocks in the factorisation of the spectral trace, and it builds upon the interplay of the L-functions with coefficients given by the Stokes constants and the q-series acting as their generating functions. Guided by this crucial example, I will propose a new perspective on the resurgence of particular formal power series, which are conjectured to possess specific summability and quantum modularity properties, leading us to introduce the general paradigm of modular resurgence. This talk is based on arXiv :2212.10606, 2404.10695, and 2404.11550.*