Joint Seminar: "Geometry&Physics"-DFT (IFIN-HH) and "Geometry"-IMAR (Geometry&Physics Homepage) (Geometry Homepage)

Seminar organizers: Mirela Babalic (NIPNE) & Sergiu Moroianu (IMAR)

Zoom link: https://us02web.zoom.us/j/891199217919

Date: Wednesday, January 27, 2021, 17:00 Bucharest time (15:00 GMT)

Title: **Double Hurwitz numbers, topological recursion and ELSV-type formulas**

Speaker: **Gaetan Borot** (Humboldt University of Berlin)

Abstract: Hurwitz theory is concerned with the enumeration of branched coverings of P^1 with given topology and constrained ramification. It can be approached/solved in at least three ways: integrable hierarchies coming from the representation theory of the symmetric (first unveiled by Okounkov and Pandharipande), intersection theory on the moduli space of curves (first seen in the Ekedahl-Lando-Shapiro-Vainshtein formula), and topological recursion (taking its roots in Bouchard-Marino conjecture). These three aspects have been established for many different type of Hurwitz problems, and after a brief review I will focus on double Hurwitz numbers where the three structures enrich each other: a joint work with Do, Karev, Lewanski and Moskowsky, we start from known representation-theoretic formulas for double Hurwitz numbers to prove a polynomiality result and topological recursion, which in turn implies an ELSV-like formula involving Chiodo classes and generalising a formula of Johnson-Pandharipande-Tseng, and proves along the way new vanishing properties of the Chiodo class.