

Seminari di Matematica

Nell'ambito delle attività seminariali del Dipartimento di Matematica,
su proposta del Dr. Fabio Deelan Cunden

il Prof. Elia Bisi (Technische Universität Wien)
terrà presso il Dipartimento di Matematica
dell'Università degli Studi di Bari Aldo Moro,
la seguente conferenza:

“Random planar trees and the Jacobian conjecture”

Il 4 giugno 2024, alle ore 15.00 in aula XI

Abstract

A map $F(x)=(F(x_1, \dots, x_n), \dots, F(x_1, \dots, x_n))$ from $\mathbb{C}^n$ to itself is called a polynomial map if each F_i is a polynomial with complex coefficients in the variables $x_1, \dots, x_n$. In 1939, Keller conjectured that every polynomial map F whose Jacobian determinant is a nonzero constant has a compositional inverse F^{-1} that is itself a polynomial map. This is still one of the greatest unsolved problems of mathematics, and is known as the Jacobian conjecture. The combinatorial approach to the Jacobian conjecture, developed more recently from the original context of algebraic geometry, is based on rephrasing the underlying concepts in terms of families of trees. We provide some new insights in this line of research, by using probabilistic methods, such as random trees, Markov chains, and branching processes. This approach also allows us to show that the high degree coefficients of F^{-1} are 'small', thereby proving an approximate version of the Jacobian conjecture.

Based on joint work with Piotr Dyszewski, Nina Gantert, Samuel G.G. Johnston, Joscha Prochno, and Dominik Schmid.

La S.V. è cordialmente invitata a partecipare.

Bari, 16 maggio 2024

F.to **Prof.ssa Anna Maria Candela**

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