

ATTIVITA' INDAM

Dipartimento di Matematica e Applicazioni "Renato Caccioppoli" Università degli Studi di Napoli "Federico II"

Martedì 1° luglio Aula F (Terzo livello)

Ore 11:00 Vincenzo Mantova (Università di Leeds)

Titolo: Transseries for dummies

Abstract: Transseries generalise power series by including exponential and logarithmic terms. I'll give a very down-to-earth introduction to transseries (or rather the 'omega-series' variant), building up on what you already know about Taylor series, and mention the key results in the area. I'll then discuss some missing bits and pieces about the properties of composition, some of which were presented by Vincent Bagayoko at the INdAM miniworkshop in May, and some corresponding applications to normalisation of hyperbolic series (joint with D. Peran, J.-P. Rolin, T. Servi).

Mercoledì 2 Luglio online zoom link: <https://zoom.us/j/99686972125>

Ore 11:00 Amador Martin-Pizarro (Università di Freiburg)

Titolo: Arithmetic progressions of length 3 in the primes and in finite fields.

Abstract: Local stability has been used in the recent years to treat problems in additive combinatorics. Whilst many of the techniques of geometric stability theory have been generalised to simple theories, there is no local treatment of simplicity. Kaplan and Shelah showed that the theory of the additive group of the integers together with a predicate for the prime integers is supersimple of rank 1, assuming Dickson's conjecture. In joint work with Daniel Palacín (UC Madrid), we will see how to use their result to deduce that all but finitely many integers belongs to infinitely many arithmetic progressions in the primes, which resonates with previous unconditional work (without assuming Dickson's conjecture) of van der Corput and of Green. If times permits, we will discuss analogous results asymptotically for finite fields.

Venerdì 4 luglio Aula E (Terzo livello)

Ore 11:00 Vincenzo Mantova (Università di Leeds)

Title: Some basic complex analysis beyond the Existential Closedness problem

Abstract: The 'existential closedness' problem for analytic functions is an idea derived from Zilber's work about the model theory of complex exponentiation, and it predicts that many systems of equations involving special analytic functions have complex solutions. I will focus on the techniques being used for attacking this problem, and discuss in detail the 'one variable' cases which in principle require little more than undergraduate complex analysis. I will show the well known case of exponential polynomials and hint at how we adapted it to work for the j -function and its derivatives (joint with V. Aslanyan and S. Eterović).

Responsabile bimestre
Giuseppina Terzo