

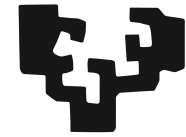


SECOND MATH COLLOQUIUM

May 9, 2017, 11:45-14:00

BCAM-Basque Center for Applied Mathematics

eman ta zabal zazu



Universidad
del País Vasco

Euskal Herriko
Unibertsitatea

11:45-12:45

Angus MACINTYRE, Queen Mary, University of London, UK

THE REAL, THE COMPLEX AND THE ZILBER EXPONENTIAL

We consider logical and algebraic aspects of the real and complex exponential, and of a more recent exponential constructed by Zilber. The latter has marvellous properties (in particular it satisfies Schanuel's Conjecture), and is conjectured by Zilber to be isomorphic to the complex exponential. I will consider mainly systems of exponential equations over these fields, and related notions of exponential-algebraic dependence. Various undecidability results will be explained, and some examples of decidability relative to Schanuel's Conjecture. I will explain how the logical and algebraic investigations have led to the solution, relative to Schanuel's Conjecture, of Shapiro's Conjecture in complex analysis.

13:00-14:00

Rosa DONAT, Universitat de València, Spain

ADAPTIVE APPROXIMATION AT WORK

Adaptivity is a key concept in the field of Scientific Computing. In this talk we shall discuss the use of certain adaptive techniques in different scenarios. We shall describe various data-dependent, adaptive reconstruction techniques used in numerical analysis in order to improve accuracy in the presence of discontinuities, their application to shock computations and their potential as prediction tools in multi-scale data representations and recursive subdivision. The link with wavelet representations will also be discussed, as well as the potential, and limitations, of nonlinear subdivision schemes in data compression.

14:00

Lunch and informal discussion