21st Math Colloquium BCAM-EHU

We are glad to announce that the 21st Math Colloquium BCAM-UPV/EHU will take place on **Wednesday, November 18th, at 11:45 (CET) at Sala Aketxe - Edificio Sede at UPV/EHU, Leioa.** Lunch will be offered at the end.

11:45-12:45 | Prof. Ana Justel (Universidad Autónoma de Madrid): Statistical Modeling of Airborne Microbial Transport in Antarctica: Challenges at the Interface of Data Science, Biology and Meteorology

Antarctica is the most inaccessible and extreme continent for life. It is considered the last pristine environment on Earth, where wind has been proposed as the main cause of entry and distribution of life, nutrients, as well as pollutants. In this talk we will review some of the work carried out by the group of the interdisciplinary MICROAIRPOLAR project in the study of the trajectories of air masses carrying microorganisms, which have provided significant advances in Data Science, Biology and Meteorology.

13:00-14:00 | Prof. Luis Narváez (Universidad de Sevilla): The Bernstein-Sato polynomial: Bridging Analysis and Algebra

At the 1954 ICM, I. Gelfand proposed a way to solve the problem of division of distributions and, consequently, the existence of fundamental solutions of linear partial differential equations. Namely, he proposed the analytic continuation of the distribution P^λ, Re λ > 0, for P a polynomial in several variables with complex coefficients. In 1972, I. N. Bernstein proved, using purely algebraic tools, the existence of a polynomial b(s) in a single variable, attached to P, controlling the analytic continuation proposed by Gelfand. It is called the Bernstein-Sato polynomial (or the b-function) of P. Since then, Bernstein-Sato polynomials have proven to be a powerful tool for studying the singularities of the vanishing locus of polynomials or analytic functions. Moreover, Bernstein-Sato polynomials are the key ingredient we should add to Algebraic Geometry to get D-module Theory. In this talk, we will review previous results and discuss some of the recent developments in this area of Mathematics.

14:00-15:00 | Lunch

ABOUT THE SPEAKERS



Ana Justel is Professor of Statistics at the Universidad Autónoma de Madrid.

Her research combines mathematical statistics, data science and interdisciplinary applications in environmental and biological sciences. Since 2003, she has participated in 11 Antarctic research campaigns and currently co-leads the MICROAIRPOLAR project, developing statistical methods to study airborne microbial transport in Antarctica. She has authored more than 60 scientific publications and developed several widely used methods in functional data analysis, classification, clustering and machine learning. Her contributions have been recognized with the Margarita Salas Award (2019) and the SEIO–FBBVA Award for Best Applied Contribution in Statistics (2026)



Luis Narváez is Professor of Algebra at the University of Sevilla. His work is placed within Singularity Theory, from the point of view of Algebraic Geometry. He is interested in the differential structures in Algebra, specially in D-module Theory, in both complex analytic and positive characteristic cases. He got his PhD thesis under the guidance of Lê Dung Tráng, at the University of Paris 7 (currently Paris Cité), and of José L. Vicente Córdoba, at the Universidad de Sevilla. It was about the description of "perverse sheaves" stratified with respect to irreducible plane curves. His main contributions are about the Bernstein-Sato polynomials, the Logarithmic Comparison Theorem and the Theory of Hasse-Schmidt derivations. He is currently Full Professor at the Universidad de Sevilla. He has supervised 7 PhD thesis. He has been invited Professor at the universities of Grenoble and Nice, and he was a member of the Institute for Advanced Study, at Princeton, during the academic year 1997-1998.