

Journée d'Analyse, IMB, 10/10/2024 en l'honneur de Pascal Thomas

Author: Alexander Borichev

Title: *Chain structure of de Branges spaces.*

Abstract: We discuss some problems concerning the chain structure of the Cauchy-de Branges spaces. We concentrate on indivisible intervals in such chains.

Author: Xavier Massaneda

Title: *From H^∞ to the Nevanlinna class.*

Abstract: We will survey several results on the Nevanlinna class, obtained by Pascal and collaborators over the years. These results often provide analogues of well-known theorems for the algebra of bounded holomorphic functions in the disk.

Author: Hervé Queffélec

Title: *The stationary phase in Functional Analysis .*

Abstract: The stationary phase issue consists in estimating more or less sharply oscillatory integrals of the form

$$I = \int_A^B e^{in f(x)} dx$$

where f is a real-valued and smooth function, and $n \rightarrow \infty$. In this survey talk, we will begin by recalling some classical estimates (from above or below) of this type.

We will then show how those estimates can be applied to various questions of Functional Analysis, here "essentially" to the study of composition operators.

First on weighted Hilbert spaces $H^2(\beta)$ with $\beta = (\beta_n)$ and moreover $\liminf_{n \rightarrow \infty} \beta_n^{1/n} \geq 1$:

$$\|f\|^2 := \sum_{n=0}^{\infty} |a_n|^2 \beta_n < \infty.$$

Then (initiated by J.P.Kahane and D. Newman for Taylor series) on Wiener algebras of absolutely convergent Taylor or Dirichlet series.

$$\left\| \sum_{n=0}^{\infty} a_n z^n \right\| = \sum_{n=0}^{\infty} |a_n|.$$

$$\left\| \sum_{n=1}^{\infty} a_n n^{-s} \right\| = \sum_{n=1}^{\infty} |a_n|.$$

This corresponds to joint works with R.Zarouf, F.Bayart, P. Lefèvre, D. Li, L. Rodríguez-Piazza.

Author: Jasmin Raissy

Title : *Perturbations of parabolic endomorphisms in dimension 2*

Abstract: Abstract: In this talk, I will present a work in progress with Matthieu Astorg and Lorena Lopez-Hernanz. We are interested in studying holomorphic endomorphisms of \mathbb{C}^2 which are tangent to the identity at the origin, and our goal is to understand how the dynamics changes when we perturb such maps. In particular, we generalize a result obtained by Bianchi and show a statement *à la Lavaurs* when the unperturbed map admits a basin parabolic centered in a characteristic direction, but it does not fix a complex line. I will recall the motivation, main ideas and results in the one-dimensional case before moving to dimension 2. Complex analysis in control theory

Author: Kristian Seip

Title: *Hörmander and Bernhardsson's extremal function*

Abstract: We study the function φ_1 of minimal L^1 norm among all functions f of exponential type at most π for which $f(0) = 1$. This function, first studied by Hörmander and Bernhardsson in 1993, has only real zeros $\pm\tau_n$, $n = 1, 2, \dots$. We show how to compute these zeros—and hence the function φ_1 —by means of a fixed point iteration. The talk is based on joint work with Andriy Bondarenko, Joaquim Ortega-Cerdà, and Danylo Radchenko