



## AM01

### Complex Analysis

### Análisis Complejo

#### Organizers

#### Organizadores

#### Antolatzaileak

**Tanausú Aguilar Hernández**

(Universidad de Málaga)

**Alejandro Mas Mas**

(Universitat de València)

#### Description

#### Descripción

#### Deskribapena

*The session is framed within the topic of complex analysis. During it, several current lines of research will be addressed, such as operator theory, complex dynamics, theory of weights, semigroup theory, etc...*

La sesión se enmarca dentro de la temática del análisis complejo. Durante la misma se abordarán diversas líneas de investigación actuales como la teoría de operadores, dinámica compleja, teoría de pesos, teoría de semigrupos, etc...

#### MSC Codes

#### Códigos MSC

#### MSC Kodeak

30-XX

(primary)

47-XX; 37Fxx; 30Hxx

(secondary)

#### Slots

#### Bloques

#### Blokeak

1.A (Aula 0.3); 1.B (Aula 0.3)

QR Code

Código QR

QR Kodea



Session Schedule

Horario de la Sesión

Saioaren Ordutegia

L13 | 17:30-17:50 | 0.3

*Bergman projection induced by radial weight acting on growth spaces***Álvaro Miguel Moreno López** (Universidad de Málaga)

L13 | 18:00-18:20 | 0.3

*Cesàro-type operator induced by radial weight on Hilbert spaces***Elena de la Rosa Pérez** (Universidad de Málaga)

L13 | 18:30-18:50 | 0.3

*Cesàro-type operators associated with Borel measures on the unit disc***Noel Merchán** (Universidad de Málaga)

L13 | 19:00-19:20 | 0.3

*Hankel operators on Paley-Wiener spaces of convex domains***Konstantinos Bampouras** (Norwegian University of Science and Technology)

M14 | 15:00-15:20 | 0.3

*On the convolution of convex 2-gons***Adrián Llinares** (Universidad Autónoma de Madrid)

M14 | 15:30-15:50 | 0.3

*Counterexample of normability in Hardy and Bergman spaces with  $0 < p < 1$* **Iván Jiménez Sánchez** (Universidad Autónoma de Madrid & I.C.A.I. Universidad Pontificia de Comillas)

M14 | 16:00-16:20 | 0.3

*Spectral picture of invertible weighted composition operators on  $\mathbb{D}$* **J. Oliva-Maza** (Universidad de Zaragoza)

M14 | 16:30-16:50 | 0.3

*Iterates of finite Blaschke products*

**Odi Soler i Gibert** (Universitat Politècnica de Catalunya)

**Monday 13**  
17:30-17:50  
[Room 0.3]

**Lunes 13**  
17:30-17:50  
[Aula 0.3]

**Astelehena 13**  
17:30-17:50  
[Gela 0.3]

*Bergman projection induced by radial weight acting on growth spaces*

**Álvaro Miguel Moreno López**

(Universidad de Málaga)

Let  $\omega$  and  $\nu$  be radial weights on the unit disc of the complex plane. We describe the boundedness of the Bergman projection induced by  $\omega$  on the growth space of functions  $f$  for which the essential supremum of  $f(z)$  multiplied by the tail integral from  $|z|$  to 1 of  $\nu$  is finite assuming some doubling conditions. Moreover, we solve the analogous problem for the Bergman projection when mapping to a Bloch-type space and explore similar questions for radial weights that decrease exponentially.

Joint work with José Ángel Peláez and Jari Taskinen.

[arXiv:2406.18446](https://arxiv.org/abs/2406.18446)

**Monday 13**  
18:00-18:20  
[Room 0.3]

**Lunes 13**  
18:00-18:20  
[Aula 0.3]

**Astelehena 13**  
18:00-18:20  
[Gela 0.3]

*Cesàro-type operator induced by radial weight on Hilbert spaces*

**Elena de la Rosa Pérez**

(Universidad de Málaga)

We define a generalized Cesàro operator induced by radial weight, and we study its action on weighted Hardy spaces of analytic functions and on general weighted Bergman spaces.

Joint work with Alejandro Mas and Noel Merchán.

**Monday 13**  
**18:30-18:50**  
**[Room 0.3]**

**Lunes 13**  
**18:30-18:50**  
**[Aula 0.3]**

**Astelehena 13**  
**18:30-18:50**  
**[Gela 0.3]**

*Cesàro-type operators associated with Borel measures on the unit disc*

**Noel Merchán**

(Universidad de Málaga)

Given a complex Borel measure  $\mu$  on the unit disc  $D$ , we consider the Cesàro-type operator  $C_\mu$  defined on the space of all analytic functions in  $D$ . We study the action of the operators  $C_\mu$  on some Hilbert spaces of analytic functions in  $D$ , namely, the Hardy space  $H^2$  and the weighted Bergman spaces  $A_\alpha^2$  ( $\alpha > -1$ ).

Joint work with Petros Galanopoulos and Daniel Girela.

[doi:10.1016/j.jmaa.2023.127287](https://doi.org/10.1016/j.jmaa.2023.127287)

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**19:00-19:20**  
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**19:00-19:20**  
**[Aula 0.3]**

**Astelehena 13**  
**19:00-19:20**  
**[Gela 0.3]**

*Hankel operators on Paley-Wiener spaces of convex domains*

**Konstantinos Bampouras**

(Norwegian University of Science and Technology)

Z. Nehari (1957) proved that a Hankel operator defined on the Hardy space of the disc is bounded if and only if it attains a bounded symbol. R. Rochberg (1982) and V. Peller (2003) characterized their Schatten classes via Besov spaces. We study the analogues of these theorems in the case of Hankel operators on Paley-Wiener spaces of convex domains, giving partial positive and negative results.

Joint work with Karl-Mikael Perfekt.

[arXiv:2303.01208](https://arxiv.org/abs/2303.01208)

[arXiv:2409.04184](https://arxiv.org/abs/2409.04184)

Tuesday 14

15:00-15:20

[Room 0.3]

Martes 14

15:00-15:20

[Aula 0.3]

Asteartea 14

15:00-15:20

[Gela 0.3]

*On the convolution of convex 2-gons***Adrián Llinares**

(Universidad Autónoma de Madrid)

In 1973, Ruscheweyh and Sheil-Small showed that the convolution of two convex mappings (i.e., two holomorphic functions which conformally map the unit disk of the complex plane onto a convex domain) is also a convex mapping. However, no further properties of these convolutions are known in general. In this talk, we will talk about the asymptotic behaviour of the (arbitrary) convolution of convex 2-gons.

Joint work with M. Chuaqui, R. Hernández and A. Mas.

[arXiv:2311.12937](https://arxiv.org/abs/2311.12937)

Tuesday 14

15:30-15:50

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Martes 14

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Asteartea 14

15:30-15:50

[Gela 0.3]

*Counterexample of normability in Hardy and Bergman spaces with  $0 < p < 1$* **Iván Jiménez Sánchez**

(Universidad Autónoma de Madrid &amp; I.C.A.I. Universidad Pontificia de Comillas)

It is known that Hardy spaces  $H^p$  and Bergman spaces  $A^p$  are not normable when  $0 < p < 1$ , though standard sources offer no proofs. In 1953, Livingston proved the non-normability of  $H^p$  for  $0 < p < 1$  using an indirect method. No proofs are known for Bergman spaces. In this talk, a direct proof is presented, showing that the usual norm expression is not valid for  $H^p$  when  $0 < p < 1$ , along with counterexamples for the triangle inequality in  $A^p$ .

Joint work with Dragan Vukotic.

[arXiv:2407.21212](https://arxiv.org/abs/2407.21212)

**Tuesday 14**

**16:00-16:20**

**[Room 0.3]**

**Martes 14**

**16:00-16:20**

**[Aula 0.3]**

**Asteartea 14**

**16:00-16:20**

**[Gela 0.3]**

*Spectral picture of invertible weighted composition operators on  $\mathbb{D}$*

**J. Oliva-Maza**

(Universidad de Zaragoza)

Weighted composition operators play an important role in the study of Banach spaces of holomorphic functions on the unit disc. For a wide list of classical spaces the spectrum of invertible weighted composition operators is known in the case the composition automorphism is either elliptic or parabolic. In this talk, we present our recent work where we obtain the spectrum and the essential spectrum of for the remaining case, i.e., when the composition automorphism is hyperbolic.

**Tuesday 14**

**16:30-16:50**

**[Room 0.3]**

**Martes 14**

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**[Aula 0.3]**

**Asteartea 14**

**16:30-16:50**

**[Gela 0.3]**

*Iterates of finite Blaschke products*

**Odi Soler i Gibert**

(Universitat Politècnica de Catalunya)

In this talk we will consider a finite Blaschke product  $f$  and the series of its iterates with coefficients  $\{a_n\}$  such that they tend to zero but are not absolutely summable. It is known that, for any  $w \in \mathbb{C}$ , there is at least one  $z$  in the unit circle where the series of iterates converges to  $w$ . We will see that the set of such points  $z$  has Hausdorff dimension 1. We will also mention an argument showing that this result is optimal in some sense.

Joint work with Spyridon Kakaroumpas.

[arXiv:2311.02717](https://arxiv.org/abs/2311.02717)