

Seminario El Almendro 2023

Coordinador: Javier Rodríguez (Dpto. Ingeniería Térmica y de Fluidos UC3M)

Sesión: 15 diciembre 2023 | Horario por determinar

Aula: Salón de Grados Padre Sole - Universidad Carlos III de Madrid - Campus de Leganés

Idioma: Inglés

Créditos: 1 crédito de formación transversal de doctorado

Formato híbrido (presencial/online)

El seminario podrá seguirse [online en directo](#) y la grabación será publicada posteriormente en el [portal de vídeos de la Universidad](#). Se notificará a los inscritos.

Inscripción gratuita

El seminario anual El Almendro se compone de diferentes charlas impartidas por investigadores que desarrollan su labor investigadora en el extranjero o en instituciones de prestigio dentro de España. En ellas nos hablan de su investigación y sus experiencias profesionales y establecen un debate con los participantes sobre diferentes temas relacionados con la carrera profesional. Las charlas están dirigidas a un público procedente de diferentes disciplinas en el **área de ingeniería y ciencias**.

El seminario se desarrollará íntegramente en inglés.

Programa

9.30-9.45 - Javi Rodríguez & Álvaro Marín - UC3M, UTwente

Opening speech

9.45-10.30 - Isabel Sola - Centro Nacional de Biotecnología/CSIC

Protection against highly pathogenic human coronaviruses. Lessons and challenges.

Vaccines have been essential to solve the world health crisis caused by SARS-CoV-2. However, SARS-CoV-2 is still circulating and leading to new challenges in research, such as the engineering of a next generation of vaccines with improved efficacy and the understanding of why some people develop long-term symptoms following COVID-19.

10.30-11.30 - Kit Wong - University College London

Bruce Lee-Inspired Fluid Antenna Multiple Access for 6G

“Be formless ... shapeless, like water!”, which were the words used by Bruce Lee, as he was revealing the philosophy of Jeet Kune Do, the martial arts system Lee founded in 1967. Many parallels can be drawn in wireless communications technologies where engineers have been seeking greater flexibility in using the spectral and energy resources for improving network

performance. In this talk, I will speak on some new ideas for improving wireless communications performance, particularly in massive connectivity scenarios, using a novel antenna technology, referred to as fluid antenna.

11.30-12.00 - Coffee break

12.00-12.45 - Lorène Champougny - Universidad Carlos III de Madrid

Science meets Art: the fluid mechanics of splat painting

Splat painting is an artistic technique consisting in projecting a spray of liquid droplets on a substrate by flicking or tapping a paint-loaded brush. Experienced artists intuitively know how much to dilute their paint or how hard to strike the brush to create the spotty pattern they desire. In this seminar, I will show how the tools of fluid physics can be used to unravel the rationale behind splat painting. Interestingly, understanding this artistic technique may also teach us something about other similar flows in engineering applications and natural phenomena.

12.45-13.30 - Idan Tuval - Instituto Mediterráneo de Estudios Avanzados/CSIC

Living in a drop of water: physical constraints to microscopic life in the ocean

The vastness of the ocean conceals a microscopic world teeming with life, where organisms navigate a complex tapestry of physical constraints. In this talk, we delve into the intricate challenges faced by microscopic life inhabiting the ocean's waters, exploring the dynamic interplay of light availability, nutrient dynamics, currents, and the ever-present forces of predation and competition.

The ocean, a realm of perpetual motion and diversity, presents an array of physico-chemical landscapes from surface to depth, influencing the metabolism and behavioural responses of its inhabitants. Light availability, a diminishing resource with depth, challenges microscopic life to innovate, whether through photosynthesis near the surface or the enchanting glow of bioluminescence in the abyssal realms. Nutrient availability, a currency of growth, dances in the currents, dictating the strategies of microorganisms to secure essential elements for survival. Water movement, an omnipresent force, directs the trajectories of microscopic beings, shaping their distribution and interactions in the vast expanse of the sea.

As predators lurk and competitors vie for limited resources, microscopic life orchestrates a delicate balance, employing defensive mechanisms and cooperative strategies to navigate the challenges of survival. We will explore the microscopic world within a drop of water, where the physical constraints of the ocean unfold as a compelling narrative of adaptation, resilience, and the continuous dance of life.

13.30-14.00 - David Galán - Biolnacia S.L.

Not being a PhD. A different approach in the Electro-HydroDynamic Atomization field

David will speak about his personal experience, showing how some pivotal decisions made along the last 20-years have shaped his professional career, in which he has played roles of scientist, engineer, manager and businessman. He will also explain the different roles in which he has found PhDs developing their careers in the industry, including the companies he has worked for, customers, suppliers, and partners.

Créditos

Para obtener un crédito de formación transversal por esta actividad, se requiere un resumen crítico de al menos una de las conferencias (extensión máxima: una página por conferencia), en inglés o en español, y enviarlo por e-mail al coordinador

javierrodriguezfluidmechanics@gmail.com antes del **31 de enero de 2024** (por favor, no enviar a otra dirección o a los ponentes). Obtendrán el crédito aquellos alumnos cuyo trabajo sea calificado apto.

Consultas: gestiondoctorado@uc3m.es



El Almendro Seminar 2023

Coordinator: Javier Rodríguez (Dpt. of Thermal and Fluids Engineering UC3M)

Session: 15th December 2023 | Schedule TBA

Venue: TBA

Language: English

Credits: 1 cross-curricular credit

Hybrid Format (in-person/online)

The seminar will be livestreamed. The recording of the seminar will be subsequently published on the [University's media portal](#). Registered students will be notified.

Free registration

El Almendro is an annual seminar featuring a variety of presentations by researchers working abroad or at prestigious institutions in Spain. The speakers talk about their research work and professional experiences and debate on different career-oriented topics with the students. The presentations are addressed to a target audience from diverse areas in the field of **engineering and science**.

The seminar will be conducted entirely in English.

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Credits

PhD students can obtain one cross-curricular credit for this activity. It is required to do a brief report on at least one of the presentations (maximum length: one page per presentation), in English or Spanish, and submit it to the seminar's coordinator javierrodriguezfluidmechanics@gmail.com before **January 31st, 2023** (please do not send to any other e-mail or to the speakers). The credit will be awarded to students with a passing grade.

Inquiries: gestiondoctorado@uc3m.es