

ICorr London Branch

November Meeting

13th November 2025 18:00-20:00 hours

Arrival 18:00-18:30 Hours

Refreshments will be provided

Presentation 18:30- 19:30

Dr Adamantini Loukodimou

“Functional coatings for renewable energy applications”

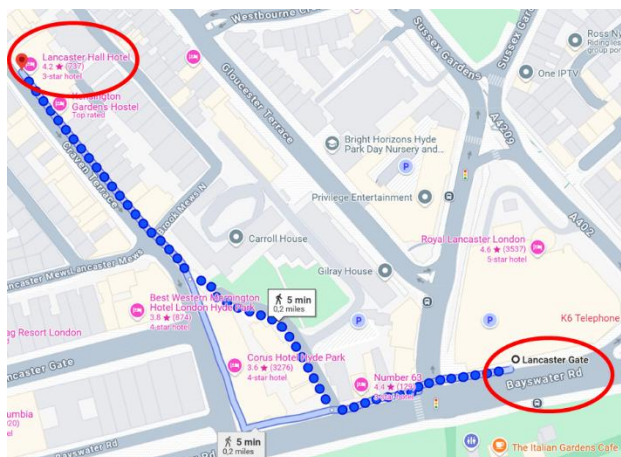
Details of talk overleaf

Après presentation 19:30-20:00 (or later)

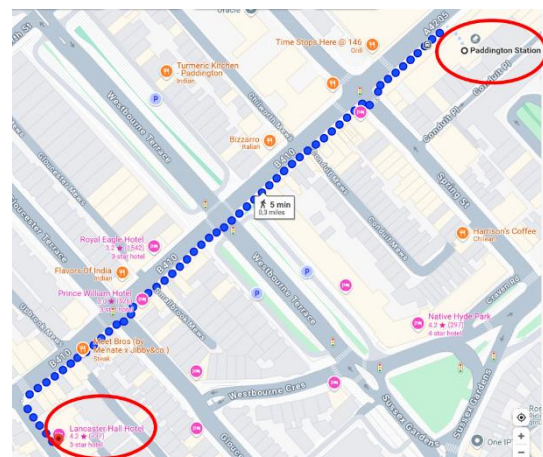
Food and drinks

The venue: The York Room, Lancaster Hall Hotel
35 Craven Terrace
London
W2 3EL

Nearest Tube / Train Stations:
“Lancaster Gate” Station and “Paddington” Station.
Both approx. 5 mins walk



Route between the “Lancaster Gate” Station and the Lancaster Hall Hotel



Route between the “Paddington” Station and the Lancaster Hall Hotel

Speaker name:

Dr Adamantini Loukodimou

Presentation title:

“Functional coatings for renewable energy applications”.

Abstract

The presentation will look at the corrosion protection of onshore and offshore wind towers. More specifically, the talk will focus on the development of anticorrosive systems for the atmospheric zone of offshore wind turbines. Offshore wind towers are subjected to harsh and corrosive environment. Additional factors such as sunlight and bird droppings can cause irreversible damage. Cathodic protection is commonly used against corrosion in offshore structures; however, the lack of continuous electrolyte (seawater) proves this method of protection unsuccessful in the atmospheric area. To extend the service life, minimise the maintenance cost, and ensure the long-term protection of the metallic structure, anticorrosive systems were investigated. The first part of this talk focuses on the formation of microcapsules loaded with corrosion inhibitor (a silane), which acts as a corrosion protection system. Based on the literature Zn/Al coatings provide good corrosion protection for metallic substrates, hence they are chosen to offer an additional protection. The talk will discuss testing of these systems to demonstrate their efficacy and show potential for future real-world applications, and allow for further novel development of coating systems.

Functional coatings could also be implemented in other renewable energy applications, such as photovoltaic panels which can experience reduced total energy output because of shading. This could be attributed to various factors, such as soiling, that blocks the sunlight. Maintaining the cleanliness of the front glass of the solar unit is crucial to fully benefit from their properties, such as spectrum and light transmittance. However, cleaning techniques can be expensive, time-consuming, impractical or unsafe. To address this challenge use of PDMS, a fluorine-free polymer binder, leads to the development of transparent coating with enriched hydrophobicity. The presentation will also show that the integration of this technology into sustainable energy communities addresses both short-term energy access and long-term sustainable development challenges in renewable energy solutions.

Biography:

Dr Adamantini Loukodimou graduated from the University of Patras, Greece with a Degree in Chemistry in 2016. After graduating, she undertook a MSc in Synthetic Chemistry and Advanced Polymeric and Nanostructured Materials at the same University, graduating in 2018. Later, she was sponsored by Lloyd's Register Foundation (LRF) in 2018 to carry out a PhD with the University of Leicester while being based at the National Structural Research Centre (NSIRC) at TWI Ltd. Since then, Adamantini has been working as a Postdoctoral Research Associate at Materials Innovation Centre (MatIC), a partnership between University of Leicester and TWI. Her research focuses on corrosion, recycling of multilayer coatings based on 'green' solvents and hydrophobic coatings for PV panels.