Report on the outcomes of a presentation and participation - Young Researcher and Innovator Conference[1]

Action number: CA21126

Grantee name: Ko-Ju Chuang

Conference Details

Conference title:European Conference on Surface Science (ECOSS38) –

Mini-symposium 05: Surface Science of Astrochemical Systems

Conference web-page: https://ecoss38.pt/programme/mini-symposium

Conference venue[2]: Forum Braga - Av. Dr. Francisco Pires Gonçalves, 4715-558 Braga, Portugal

Conference start and end date: 24/08/2025 to 29/08/2025

Accepted contribution details

Title of the presentation: X-ray and EUV-driven Interfacial Reactions of Icy Dust: Erosion and Carbon-bearing Species in Disks

Type of the presentation: Oral

Co-authors: C.-Y. Lee, C. Jaeger, C.-H. Huang, N.-E. Sie, Y.-Y. Hsu, and Y.-J. Chen

Other details of the presentation: Invited keynote speaker (30+10 min)

Outcome of the conference participation

I delivered an invited keynote presentation (30 minutes) in the astrochemistry focus session at the ECOSS 38 meeting. My talk introduced the diverse audience—ranging from spectroscopists to surface scientists—to the astronomical background and emphasized the importance of interfacial chemistry between interstellar water ice and carbonaceous dust grains. I presented a series of studies on the reactivity of carbon grains under energetic photon processing, deliberately connecting them to the interfacial reaction community by highlighting shared techniques such as FTIR spectroscopy, SEM/TEM microscopy, synchrotron-based (wavelength-dependent) irradiation, and TPD.

The presentation also showcased several published and forthcoming papers in collaboration with Cornelia Jaeger, former WP3 leader of Nanospace, thereby strengthening the visibility of the network. The talk concluded with the astrochemical implications of carbon dust erosion and its impact on the C/O ratio in planet-forming regions. Audience feedback was highly positive, extending beyond the astrochemistry community.

[1] This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.
[2] For an online conference, specify virtual participation; for hybrid conferences, specify whether it is an in-person or virtual participation.

The keynote further stimulated discussions during the Q&A session, where several new project ideas were raised, particularly regarding the catalytic role of dust grains. These exchanges laid the foundation for potential collaborations with surface scientists and expanded my professional network within and beyond Nanospace.

Acknowledgement of inclusion of necessary supporting documents to claim the grant

I confirm that the following documents have been uploaded on e-COST as an integral part of this report:

- the certificate of conference attendance.
- the programme of the conference or book of abstracts / proceedings indicating the presentation of the grantee.
- copy of the given oral presentation.