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

Action number: CA21126

Applicant name: Danial Mohammadi

Conference Details

Conference title: European Conference on Laboratory Astrophysics (ECLA 2026) - "Exploring the Cold Universe"

Conference web-page: https://www.mpia.de/ecla2026

Conference venue[2]: Max Planck Institute for Nuclear Physics (MPIK), Heidelberg, Germany (in-person participation)

Conference start and end date: 21/09/2026 to 25/09/2026

Accepted contribution details

Title of the presentation: Gas-Phase Infrared Spectroscopy of Ethynyl-Bearing PAHs from Electrical Discharge using FELIX

Type of the presentation: oral (contributed talk)

Co-authors: Piero Ferrari, Vera Helmonds, Jérôme Loreau, Ewald Janssens, Peter Lievens, Kevin Anthony Kaw, Mark H. Stockett

Other details of the presentation: Abstract accepted and presented for a contributed talk at Session 5: Gas Phase Reaction Rates (Chair: Sandra Brünken). The experimental work was carried out during a NanoSpace (CA21126) STSM at HFML-FELIX, Radboud University (March 2026), and directly addresses the conference theme "Exploring the Cold Universe."

Outcome of the conference participation

Description of the outcome of the presentation of the accepted contribution, in terms of grantee's visibility, including the establishment of new contacts for future collaborations

(max.500 word)

I presented the contributed talk "Gas-Phase Infrared Spectroscopy of Ethynyl-Bearing PAHs from Electrical Discharge using FELIX" in Session 5: Gas Phase Reaction Rates (Chair: Sandra Brünken) at ECLA 2026, held at MPIK Heidelberg from 21 to 25 September 2026. This was my first oral presentation at an international conference. The talk reported the IR-UV ion-dip measurements I carried out during my NanoSpace (CA21126) STSM at HFML-FELIX, Radboud University, in March

[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 Grant Holder Manager to verify the grant documents compliance and proceed with the payment.

[2] For an online conference, specify virtual participation; for hybrid conferences, specify whether it is an in-person or virtual participation.

2026, and presented them to the main European laboratory-astrophysics audience. The results address the conference theme "Exploring the Cold Universe" directly. The talk generated lively discussion during the session and in the breaks. Researchers with expertise in gas-phase laser spectroscopy, including resonance-enhanced multiphoton ionisation (REMPI), gave me valuable insight into the experimental approach and the interpretation of the data. The conference also allowed me to meet in person with my co-authors Dr. Piero Ferrari and Prof. Jérôme Loreau. We reviewed the results and decided to submit the work to The Astrophysical Journal, and we have started writing the manuscript. The publication will carry full acknowledgement of COST Action CA21126. I also established new contacts with leading researchers in the field whose work I previously knew only through the literature. These included Dr. Gabi Wenzel (Massachusetts Institute of Technology / Center for Astrophysics | Harvard & Smithsonian), whose laboratory spectroscopy underpins the GOTHAM detections of individual PAHs in TMC-1, and Prof. José Cernicharo (IFF-CSIC, Madrid), who leads the QUIJOTE line survey. We discussed ethynylindene, which both groups are working to detect in space, and the need for experimental spectroscopic data to support such detections. These conversations link the NanoSpace-supported laboratory work directly to the observational programmes that will use it. Presenting to this audience early in my PhD raised the visibility of my research. It also gave me confidence as a presenter, and researchers working on closely related problems now know me and my work. These contacts will support future collaborations and beamtime applications within and beyond the Action.

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 issued by the conference organiser.

- the programme of the conference or book of abstracts / proceedings indicating the presentation (oral or poster) of the grantee.