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

Action number: CA21126

Grantee name: Piyush Kalambkar

Conference Details

Conference title: 46th COSPAR Scientific Assembly (COSPAR 2026), 1–9 August 2026

Conference web-page: https://cospar2026.org/

Conference venue: Fortezza da Basso, Viale Filippo Strozzi 1, Florence, Italy

Accepted contribution details

Title of the presentation: Effect of Reactant Abundances on Diffusion-Driven Ammonium Carbamate Formation in Carbonaceous Cosmic Dust Analogues

Type of the presentation: Oral presentation

Co-authors: Dr. habil.Alexey Potapov

Other details of the presentation: Session F3.4 – Interstellar Chemistry, Interstellar Origins: Observations, Experiments, Models and Theory of the Molecular Evolution of the 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)

Participating in COSPAR 2026 and giving my first oral presentation at the Assembly was an important scientific and professional experience for me. The conference brought together researchers from many areas of space science, and presenting my work in the F3.4 session gave me the opportunity to introduce my PhD research on diffusion-driven chemistry in carbonaceous cosmic dust analogues to a broad international audience.

In my talk, I presented our laboratory results on the formation of ammonium carbamate through the diffusion of NH3 and CO2 in porous carbon dust, with particular emphasis on how reactant abundance, deposition order and water content affect the reaction rate and product yield. Presenting these results helped increase the visibility of my work and of the laboratory astrochemistry research being carried out at Friedrich Schiller University Jena.

The questions and scientific discussions connected with the presentation were especially valuable. They allowed me to discuss the interpretation and astrophysical relevance of the experiments with researchers working on interstellar chemistry, laboratory astrophysics, dust-grain processes and related observational and theoretical topics. These exchanges gave me useful feedback, helped me view some aspects of the experiments from different perspectives, and generated ideas that can be considered in future work.

[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.

The conference also provided an excellent opportunity to meet researchers outside my immediate group and to establish new professional contacts. These interactions expanded my scientific network and may lead to future exchanges, comparisons with complementary laboratory or observational studies, and possible collaborations.

Overall, my participation in COSPAR 2026 increased the visibility of my research, provided valuable scientific feedback, expanded my international network, and strengthened my experience in presenting and discussing my work at a major international conference. The COST Young Researcher and Innovator Conference Grant was important in enabling my participation and the dissemination of this research.

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.

- no PDF version of the abstract book, only to be viewed online under the link: https://www.cospar-assembly.org/admin/session_cospar.php?session=1497 (Abstract number:21)