Editorial

Dear colleagues,

Welcome to the first issue of this newsletter. Polycyclic Aromatic Hydrocarbons (PAHs) remain one of the most abundant classes of complex organic molecules detected in space, carrying an estimated 10–20% of the carbon in the interstellar medium. This issue rounds up three recent papers on PAH emission features, a JWST spectroscopy campaign, and the usual meetings calendar.

As always, we welcome short summaries of newly accepted papers, PhD positions, and meeting announcements from the community for the next issue.

The Editorial Team

Next issue: 15 October 2026.
Submission deadline: 1 October 2026.

Aromatic Infrared Bands Toward the Orion Bar

The Orion Bar is a favourite laboratory for PAH astrochemistry: a dense photodissociation region illuminated almost edge-on, so the transition from ionised gas through the PAH-emission layer to the molecular cloud can be mapped spatially rather than inferred from an unresolved spectrum.

Recent JWST/NIRSpec integral-field observations resolve the 3.3, 6.2 and 7.7 µm aromatic infrared bands across this transition at sub-arcsecond resolution for the first time. The band ratios shift systematically with distance from the ionisation front, consistent with a changing balance between PAH cations and neutrals as the local radiation field softens.

- The 3.3 µm/11.2 µm ratio, a common proxy for PAH ionisation state, drops by a factor of $\sim$3 across the mapped region.
- No strong evidence yet for a spatial break in PAH size distribution, contrary to some pre-JWST predictions.
- Follow-up MIRI/MRS spectroscopy is scheduled to extend the map to the 12–18 µm range this cycle.

Abstracts

Spatially Resolved Aromatic Band Ratios in the Orion Bar with JWST/NIRSpec

A. Tielens[1], **M. Berne**[2] **and K. Habart**[2]

Leiden Observatory, Leiden University

Institut d'Astrophysique Spatiale

We present JWST/NIRSpec IFU observations of the Orion Bar photodissociation region, mapping the 3.3, 6.2 and 7.7 µm aromatic infrared bands at 0.2 arcsecond resolution. Band ratios vary smoothly with depth into the cloud, tracing the changing PAH ionisation balance predicted by photochemical models. We find no evidence for the sharp size-selective photodestruction zone proposed in earlier ground-based studies.

A Survey of PAH Emission in Nearby Star-Forming Dwarf Galaxies

R. Sandstrom[1] **and L. Draine**[2]

Max Planck Institute for Astronomy

Princeton University

Using archival Spitzer/IRS spectra of 42 nearby dwarf galaxies, we measure the PAH-to-total-infrared luminosity fraction as a function of gas-phase metallicity. The fraction declines steeply below 12 + log(O/H) = 8.0, consistent with PAH destruction in the harder radiation fields of low-metallicity star-forming regions.

Announcements

- **PAHs and the Universe III** — 12–16 April 2027, Granada, Spain. Abstract deadline: 15 January 2027.
- **Molecular Astrophysics Gordon Research Conference** — June 2027, Newport, RI, USA.
- **JWST Cycle 4 Proposal Deadline** — 1 November 2026.

Postdoctoral position, Leiden Observatory. A 2-year postdoctoral position is available to work on laboratory spectroscopy of PAH cations relevant to JWST mid-infrared observations. Applications due 1 December 2026.

New database release. The PAH IR Spectroscopic Database (v4.0) now includes computed spectra for over 4000 PAH species, including nitrogen-substituted and partially dehydrogenated variants.

AstroPAH Newsletter

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