

## Seeking Organic Electro-optical Materials and/or Modulators for High-speed Communication, and Materials for Photonic Assemblies and Protective Coatings



Nippon Kayaku, a global chemical products company, is actively seeking to advance the research and development of **organic electro-optical (EO) polymer materials** for modulators, switches, and optically integrated circuit (PIC) technology towards ultra high-speed and energy-saving optical communication technology. There is also interest in **materials associated with photonic assemblies and protective coatings**.

### Approaches of Interest:

- Organic EO materials with the following characteristics are of high interest:
  - (1) High EO coefficient ( $r_{33}$ ) at O-band (1310 nm) / C-band (1550 nm) (2) Low absorption loss at O-band (1310 nm) / C-band (1550 nm) (3) High thermal stability ( $T_g$ )
- The use and application of organic EO materials for the **development and commercialization of optical modulators**
  - Ideal characteristics for these modulators include: (1) Wide modulation bandwidth ([GHz] at -3 dB range) at O-band (1310 nm) / C-band (1550 nm) (2) Low half-wave modulation voltage ( $[V\pi]$ ) (3) Compact modulator size ([mm]) (4) Low optical loss of the modulator ([dB])
- There is also interest in complimentary materials such as **diamine and maleimide** which are used in **photonics assemblies**, and for **protective coatings**
  - Diamine can be used as raw material for polyimide, polyamide, and epoxy resins. The team is looking for **low dielectric improvements** with this material. Improved thermal, chemical, mechanical and optical properties are desired
  - Maleimides with improved **low dielectric properties** and **greener/sustainable** versions of these materials are of interest also
- Opportunities between **TRL4 and TRL6**, with proof of scalability, will be prioritized






### Out of Scope

Opportunities relating to highly carcinogenic materials, or unsustainable materials.

### Submission Information and Opportunity for Collaboration

Submission of one-page, 200–300-word briefs is encouraged, along with any optional supplementary information e.g. relevant publications. **Completion of this submission form is highly recommended.** This campaign is also open to submissions from SMEs and startup companies. In submitting to this campaign, you confirm that your submission contains only non-confidential information. Our client is open to a range of collaboration opportunities, with the most appropriate outcome being decided on a case-by-case basis. Example outcomes include licensing assets and research collaborations.

### Opportunities sought

-  Technologies
-  Academics and expertise
-  Centres of excellence
-  Research projects
-  Spinout companies

### Submissions

Please submit relevant, non-confidential opportunities online [here](#)

Deadline: **24th March 2025 - 11:59 pm GMT**

#### Have any questions?

Contact our team at [discover@in-part.co.uk](mailto:discover@in-part.co.uk)

