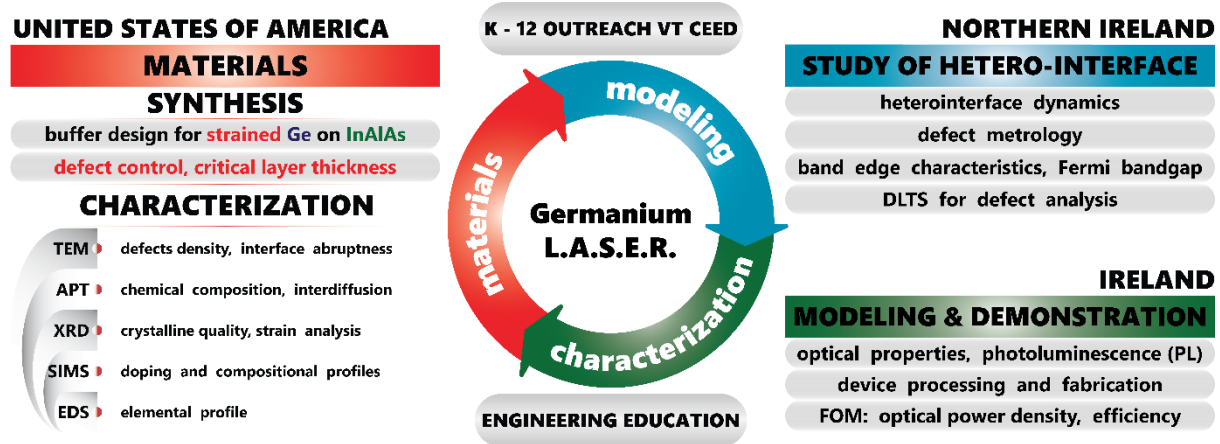


## CAPPA: Post-Doc Optoelectronic Researcher

24 Month Fixed Term Whole Time Contract.

The Centre for Advanced Photonics & Process Analysis (CAPPA) is a research centre working in the fields of applied optics and photonics and is based at Munster Technological University (MTU). The centre has an active and varied research portfolio and number of industrial partners in various sectors including medical devices, electronics, food technology, pharmaceuticals and photonics.

This new post is part of the **US-Ireland R&D Partnership project** which includes three partners: US (Virginia Tech), NI (Ulster University) and ROI (MTU).



The main objective of this US-Ireland R&D Partnership project is to develop a novel Short-Wavelength-Infra-Red (SWIR) widely tuneable laser sources, in the range of 1.7 $\mu\text{m}$  to 2.5 $\mu\text{m}$  for Optical Coherence Tomography (OCT) and biomedical applications. The novel light sources will be based on a highly-strained germanium (Ge)-on-InGaAs material, integrated on GaAs and ultimately on Si substrate. An original **monolithic integration scheme of tuneable wavelength** Ge light source would create a new platform for nanoscale photonics and in particular for unique OCT imaging.

More information about the project can be found here:

<https://www.mtu.ie/news/mtu-cappa-centre-wins-funding-award>

In this project, CAPPA will use modelling software to solve a large variety of waveguides and gratings with various geometries to develop device design. Material characterization and device processing will be done by CAPPA at the MTU and Tyndall National Institute labs. After completion of all laser processing steps, the device will be examined, including current-voltage (I-V) and light-current (L-I) characteristics, efficiency, threshold current, RF bandwidth and tuneability of optical spectra.

### Reporting:

The proposed role will be located primarily in MTU Cork. The post-doctoral fellow will be supervised by Dr. Tomasz Ochalski and obligated to submit biannual reports to the MTU head of science and Science Foundation Ireland.

### Key skills and experience requirement:

- Have a PhD or equivalent (or be expected to graduate in the near future) in solid state physics, material engineering, optical systems or similar,
- Be able to travel to the third countries for secondments, short visits, conferences or meetings,
- Be able to write biannual reports, papers, conference proceedings,
- A strong publication record would be an advantage,
- Fluency in English and excellent written and oral presentation skills are essential.

**Experience in the following areas is desirable:**

- Interest in commercialisation of the program results,
- Experience in laser processing, including mask design,
- Experience in working in a clean room environment,
- Knowledge about electrical and optical characterisation of laser devices,
- Knowledge and/or experience in designing laser cavities,
- Knowledge and/or experience in laser based system design and realisation,
- Experience with laser design software such as Photon Design Fimmwave, Las Cad or similar.

**Qualification requirements**

- Have a PhD or equivalent (or be expected to graduate in the near future) in solid state physics, material engineering, optical systems or similar,

**Terms of the Appointment**

The position will be initially for a period of 24 months. The successful candidate would be expected to start as soon as possible after receiving an offer.

**Salary**

Remuneration for postdoctoral position will be on the researcher salary scale (€37,528 - €45,633) in line with experience.

**The Interview Process**

At interview the candidates will be assessed under (but not limited to) a number of criteria:

- Appropriateness of the candidate to the role and assessment of current skillset
- Ability to manage projects and develop new ideas for research projects to contribute to the overall enhancement of research being carried out
- Fluency in written and presentation skills (English)
- Independent motivation and team contributions

**Closing time and dates**

Applications by MTU eRecruitment systems only. Applications will not be accepted in any other format. Please log on to [www.mtu.ie/vacancies](http://www.mtu.ie/vacancies)

**Closing date for receipt of completed applications is 1pm on Monday, 11 April 2022.**

**Contact Details:**

Dr. Tomasz Ochalski Phone: +353-21-2346836

Email: [tomasz.ochalski@mtu.ie](mailto:tomasz.ochalski@mtu.ie)

Centre for Advanced Photonics & Process Analysis, Web: [www.cappa.ie](http://www.cappa.ie)

Dept. of Physical Sciences, Munster Technological University

**NOTE:**

In addition to the minimum qualifications, it may be necessary to introduce further shortlisting criteria. Therefore, applicants may be shortlisted on the basis of qualifications and suitable experience, based on details given in the application form. Applicants should note that they may be called for more than one interview.

Munster Technological University is an equal opportunities employer.