



Fully funded Ph.D. Studentship (4 years): HeatToPower: Life cycle assessment of new generation of sustainable thermoelectric materials and devices

BiOrbic Bioeconomy, SFI Research Centre is Ireland's national research centre, with over 100 researchers focused on the development of sustainable circular bioeconomy. In conjunction with University of Nottingham BiOrbic runs the EPSRC and SFI Centre for Doctoral Training (CDT) in Sustainable Chemistry: Atoms-2-Products.

This 4-year PhD studentship will focus on quantifying the environmental impacts of new generation of sustainable thermoelectric materials and device as part of the thematic area "HeatToPower." Thermoelectric materials are capable of converting wasted heat into useful electrical energy and potentially offer new, sustainable energy solutions. However it is necessary to better understand the direct and indirect impacts of implementing these technologies in practice before sustainability claims can be made.

The appointed candidate will work as part of a multidisciplinary team with highly motivated organic, inorganic and physical chemists, physicists and engineers at its core. The research will take on the challenge of using life cycle assessment to determine the environmental impacts of the energy system disrupting technologies being developed by the team.

The CDT will provide research training in the theoretical skills needed to work with the core chemistry, physics and engineering teams to understand how new materials are exploited. Most importantly for this particular PhD studentship, advanced training in life cycle assessment will be provided. The post will suit someone with a strong interest in sustainability and the search for scientific and technical solutions to global energy issues.

The PhD will be hosted at University College Dublin, and will involve a student-focused, individually tailored programme of technical training courses and workshops as part of the CDT, designed to provide the skills and confidence required for a successful PhD project. Some of this training will be provided at University of Nottingham, UK. With the support of the Principal Supervisor, academic mentors and the CDT, the candidate will have a unique opportunity to design and develop their own research project in this area based on the chemistry, physics and engineering contributing to the thematic area. The candidate will have to spend some time in University of Nottingham, UK during the life cycle inventory phases of the research for data collection and to fully understand the systems being evaluated.

Applications are invited from suitably qualified candidates to join both the CDT *Atoms-to-Products: HeatToPower* team and the BiOrbic Bioeconomy Sustainability Platform research team. Candidates who wish to be considered should:

- Hold a BSc, BE, or equivalent 2.1 degree *or* MSc, ME or equivalent degree.
- Provide evidence of (i) reasonable numeracy skills; (ii) interest in sustainability, environmental impact and life cycle assessment; (iii) willingness to work as part of a collaborative team
- Meet the general admission requirements for the PhD degree at University College Dublin
- If necessary, provide evidence of meeting minimum English language requirements (outlined [here](#))

The candidate will register with UCD School of Biosystems and Food Engineering, working under the supervision of Prof. Nicholas Holden (people.ucd.ie/nick.holden) and an appropriate research studies panel. The funding is €24,000 per year for 4 years. This includes a fee contribution of €5,500 p.a. and a tax-free stipend of €18,500 p.a. Additional fee support for non-EU students can be negotiated with the Head of School, but is not guaranteed. General information can be found at:

- [graduate programmes at UCD](#)
- [BiOrbic Bioeconomy](#)
- [Atoms-to-Products CDT](#)
- [School of Biosystems and Food Engineering](#)

To apply submit electronic copies of (i) your Curriculum Vitae; (ii) the names and contact details of two academic referees; (iii) a cover letter outlining your motivation and what you imagine your PhD project might entail, to: Professor Nicholas M. Holden at Nick.Holden@ucd.ie

The studentship will remain open until filled. Applications will be reviewed monthly, starting the first week of June 2022.