Role: Principal Scientist - Head of Inorganic Materials, Formulation & Testing
Reports to: Chief Scientific Officer (CSO)
Location: Cambridge, UK

Role Summary

Cambridge Photon Technology (CPT) is a spin-out company from the University of Cambridge developing a breakthrough technology to break the efficiency ceiling of conventional silicon solar panels. Our Singlet Fission-based Photon Multiplication (PM) technology offers a "frictionless" path to super-efficient solar power, integrating into existing module manufacturing lines to elevate silicon PV efficiencies beyond 30%.

We are entering a critical phase of intensive, product-focused development and are expanding our technical team to execute an aggressive technical roadmap. We are seeking a Principal Scientist to lead our **Inorganic Materials, Formulation & Testing** team.

This is a senior, lab-focused leadership role. The successful candidate will report directly to the CSO and will lead a dedicated multi-disciplinary team (comprising scientists in QD Synthesis and Material Formulation & Testing). You will be directly responsible for two critical workstreams:

1. **Inorganic Materials:** Inventing and optimizing the high-performance nanocrystal "emitters".
2. **System Formulation:** Combining all active materials (organics and inorganics) into a stable, high-performance system and leading its characterisation.

Key Responsibilities

The position is a senior, hands-on role combining strategic leadership with expert lab work:

- **Strategic & Technical Leadership:** Lead and manage the Inorganic Materials, Formulation & Testing team. Provide scientific direction, mentorship, and project management to align with the company's technical roadmap.
- **Inorganic (QD) Workstream:** Lead the strategic development, synthesis, and optimisation of high-performance inorganic nanocrystal emitters. Drive R&D to meet ambitious roadmap KPIs for quantum efficiency, emission energy, and stability.
- **System Formulation Workstream:** Lead the formulation and optimisation of the complete multi-component Photon Multiplication system. Systematically investigate material combinations and formulations to maximise efficiency and minimise loss pathways.
- **Advanced Characterisation:** Oversee and guide all advanced photophysical characterisation of materials and systems (e.g., PLQE, UV-Vis, transient absorption/PL spectroscopy) to build a deep understanding of system performance.
- **Cross-Functional Collaboration:** Work in close, daily collaboration with the **Principal Scientist - Organic Materials Synthesis** to ensure seamless integration of organic and inorganic components,

particularly at the ligand-nanocrystal interface.

- **IP Generation & Reporting:** Proactively identify and document new intellectual property. Prepare detailed reports and present strategic progress, results, and next steps directly to the CSO and at regular technical meetings.
- **Lab Management & Safety:** Ensure the inorganic synthesis and spectroscopy labs operate safely and efficiently, managing equipment, chemical inventory, and adherence to all health and safety practices (including laser safety).

Role Requirements

With a PhD in Chemistry, Physics, Materials Science, or Chemical Engineering, you will be a creative and driven scientist with a proven track record of delivering high-performance materials and optoelectronic systems.

Essential Experience & Skills:

- **Extensive expertise** in the purification and functionalisation of colloidal inorganic nanocrystals (Quantum Dots).
- **Proven track record** in the formulation and advanced photophysical characterisation (e.g., PLQE, transient spectroscopy) of multi-component optoelectronic systems (e.g., OPVs, OLEDs, QD-based devices).
- **Demonstrated experience** in leading research projects and/or managing a small technical team, with the ability to plan and execute complex, parallel R&D workstreams.
- **Deep theoretical and practical understanding** of organic and nanocrystal photophysics, singlet fission, surface chemistry, and energy transfer mechanisms.
- **Strong understanding** of structure-property relationships in photoactive materials.
- Expertise in **air-sensitive sample preparation** (e.g., Schlenk line, glovebox).
- A "hands-on" mentality, with the ability to work independently and solve complex technical challenges.
- Excellent organisational, communication, and interpersonal skills.

Advantageous Experience:

- Direct experience with NIR-emitting nanocrystals.
- Familiarity with singlet fission systems and triplet exciton dynamics.
- Knowledge of sample encapsulation techniques for stability and device testing.
- Experience with Design of Experiments (DOE) methodology for system optimisation.
- Scripting (e.g., Python, Matlab) for data analysis and equipment automation.

What We Offer

- A key leadership role in a high-impact company with the potential for truly global environmental and commercial impact.
- The opportunity to grow with an organisation as its technology goals are achieved.

CAMBRIDGE PHOTON TECHNOLOGY

- A competitive salary and benefits package, commensurate with experience.
- A full-time role (37.5 hour week) based in Cambridge, UK, with 25 days holiday allowance.

Interested parties should send a CV and covering letter to careers@cambridgephoton.com