# Precursors for sustainable next-generation touchscreen devices

**MSc by Research (MRes) opportunity in the Pike group**

**Funding covers all university fees** (home (UK) students only)

Are you finishing your 3rd year of undergraduate studies and interested in a research-based master's year (with no fees to pay)?

The Pike group are looking for an enthusiastic student to join our research team in Oct 2023 (but with a flexible start date) for a 1-year research project. The Pike group study the photochemistry and reactivity of inorganic molecules and metal oxide materials.[1-3] The master's by research course is a research only degree, without exams or taught modules. At the end of the year the student will write a research thesis on their project.

**Project Outline:** Transparent conducting oxides are enormously important for modern society, with applications in touch screen displays and solar panels (>$100 bn market value). Despite this, commercialised technologies rely on the rare and expensive element indium.[4] Therefore, there is an immediate need for transparent conducting materials built from abundant and low-cost elements, especially for scale-up of solar technologies. This project will explore novel molecular inorganic precursors which can be used to deposit of sustainable, next-generation transparent conducting oxides. The student will learn skills in molecular inorganic synthesis, X-ray crystallography and materials synthesis and characterisation during this exciting project.

Seb is a Royal Society University Research Fellow, in joining the group you will be a crucial member of the research team and will work closely with Seb. We work in the MAS building in a sociable lab. We also regularly join other research groups for Solid-State Chemistry Group meetings. If you have any questions, please contact Seb by email at sebastian.pike@warwick.ac.uk or drop by for a chat in MAS 4.11. Find out more at https://warwick.ac.uk/pikegroup/


1. Brown, S. E.; Mantaloufa, I.; Andrews, R. T.; Barnes, T. J.; Lees, M. R.; De Proft, F.; Cunha, A. V.; Pike, S. D., *Chem. Sci.* **2023,** *14*, 675-683.
2. Barnes, T. J.; Payne, J.; Pike, S. D., *Chem. Commun.* **2023,** *59* (1), 59-62.
3. Krämer, T.; Tuna, F.; Pike, S. D., *Chem. Sci.* **2019,** *10* (28), 6886-6898.
4. *J. Mater. Chem. C* **2016,** *4* (29), 6946