**From E-Waste to Green Energy: Waste as a Critical Material Source for Photovoltaic Technologies through Industrial Symbiosis**

**Rhys Charles**

**Academic supervisor: Dr Peter Douglas**

**Industrial supervisor: Gareth Liversage**

We are on the brink of significant climate change and face the limits of linear economic models. Transition to a resource efficient ‘circular’ economy with widespread deployment of green energy technologies is necessary. This will require supplies of critical raw materials (CRMs) for which Waste Electrical and Electronic Equipment is a potential source. We have developed a novel recovery strategy in which platinum was recovered from waste thermocouples as chloroplatinic acid and used to fabricate counter electrodes for dye-sensitized solar cells. This demonstrates that industrial symbiosis and recovery of CRMs as ‘added value’ chemicals for manufacturing can enhance recovery rates.