

## **Title: Novel biomaterials for cleaning waters**

### **About the project or challenge area**

Phenolic compounds are present in the wastewater of various industries such as oil refining, petrochemicals, pharmaceuticals, plastics, paper, and many others. The toxicity levels of these compounds usually are in the range 9–25 mg/L for both humans and aquatic life. Thus, there is a need to treat wastewaters affected with phenolic compounds before discharge. Prototissues are a new class of biomaterials that have great potential to address this problem because they are biocompatible, highly tuneable, and permeable to small molecules but not to macromolecules (P. Gobbo *et al.*, *Nat. Mater.*, **2018**, *17*, 1145-1153). In this project we will explore the possibility of chemically programme prototissues to sequester phenols from wastewaters and catalyse the polymerisation of polyphenols, which will remain trapped inside the prototissue.

### **Why chose this opportunity?**

The project is highly multidisciplinary, and the student involved will broaden their chemistry skills. More specifically, they will learn about polymer chemistry and characterisation, which is a highly desirable skill in industry; they will improve their skills in analytical chemistry, as they will need to determine concentrations of phenols; and they will learn how to generate and characterise novel biomaterials. Full training will be provided for all aspects of the project.

By joining the research group of Dr Gobbo, the student will be part of a dynamic, multidisciplinary, and multicultural learning environment, and they will work with top researchers in materials chemistry from across the world. In addition to your supervisory team a mentor will be assigned to the student for the duration of the project. The mentor will provide support and help to troubleshoot any issue that may arise from the project, and identify any additional training needs or opportunities. Overall, this will help the student to improve their chemistry, teamwork and networking skills.

Finally, the student will improve their oral and written communication skills by presenting and group meetings, and by participating at local seminars, symposia and conferences.

### **About you**

You will have skills and knowledge in synthetic chemistry, analytical chemistry, biochemistry, teamwork and time management. These skills are desirable but not essential.

### **Bench fees**

A bench fee of £4000 is required. A small number of School of Chemistry Bench fee bursaries are available to part-cover bench fees.

**How to apply:** To make a formal application, follow the 'Start a new application' link on this page: <http://www.bristol.ac.uk/study/postgraduate/apply/> and include "Pierangelo Gobbo" in the "preferred supervisor" box.