



## Atmospheric Pollution by Tyres

*Professors Mark A. Sephton (ESE), Alexandra Porter (Materials)*



Tyre wear generates 2,000 times more particle pollution than exhaust emissions. In London alone, there are 2.6 million registered vehicles emitting approximately 9 million kg of tyre wear particles per year, releasing a range of toxins into the environment. Tyre particles contain numerous toxic and carcinogenic organic compounds. Tyres are significant sources of ultrafine particles which represent greater risk because they can easily enter the human bloodstream. This project will examine the chemistry of fresh and aged tyre samples to see how the chemical composition varies. We will use analytical chemistry (e.g. solvent extraction, gas chromatography, mass spectrometry) to look for toxic compounds and seeks to generate recommendation on tyre use to reduce ultrafine particle emissions.

The project would suit a candidate with enthusiasm for pollution or environmental science and a background in Environmental Science, Earth Science, Chemistry or a subject that develops similar skills.

- For more information contact: [Professor Mark Sephton \(m.a.sephton@imperial.ac.uk\)](mailto:m.a.sephton@imperial.ac.uk) or [Professor Alexandra Porter \(a.porter@imperial.ac.uk\)](mailto:a.porter@imperial.ac.uk)
- Details of how to apply are at: <https://www.imperial.ac.uk/earth-science/prosp-students/phd-opportunities/apply/>
- Funding details can be found at: <https://www.imperial.ac.uk/earth-science/prosp-students/phd-opportunities/funding/>