



THE PROBLEM

- UK produces 370 million tons of CO₂ every year
- Road transport is the 4th source of air pollution in UK
- Oil consumption in the UK in 2020 was 71 million tons
- Of these, about 35% were used in the transport sector
- The corresponding CO₂ emissions are 60 million tons

TECNOLOGY

- Soot in the oil is considered a major cause of engine wear and components damage
- Viscosity increases > 200% with soot contamination up to 4% in the oil
- Increases in oil viscosity of 30% result in 1% decrease in fuel economy

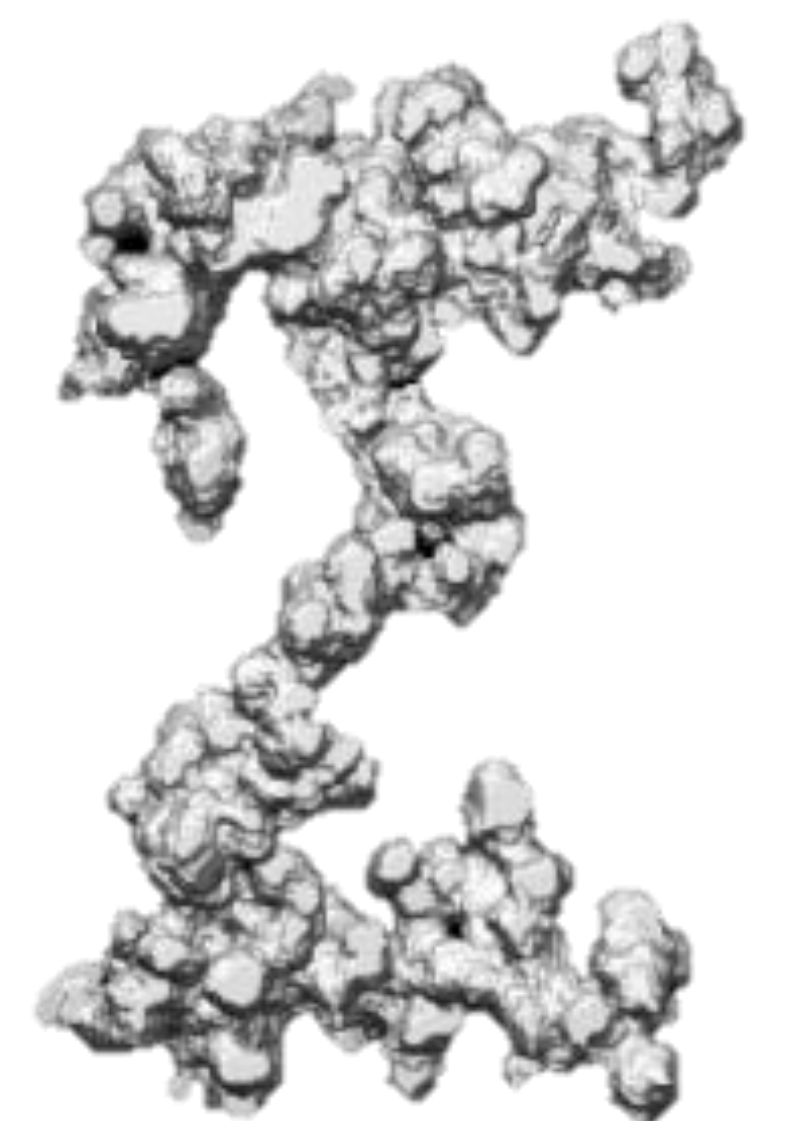
SCIENCE

- Engine longevity and waste depends upon clean oil
- Soot load increases with engine usage
- The soot / lubricant interaction is not fully understood
- Your car consumes up to 0.5 L of oil every 1000 km

TARGETS

- Extend oil useful life: sealed-for-life car engines
- Better oil design to reduce NO_x and PM emissions
- Lower environmental impact
- Less oil waste

Engine Soot: Exhausting topic?



COOPERATION

Synergetic approach between:

- Engine developer (Volvo)
- Oil additives expert (Infineum)
- Fundamental science researchers (UoN)

SOOT CHARACTERIZATION

- High-Resolution Microscopy
- Chemical Analysis
- 3D-Reconstruction
- Numerical simulations



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