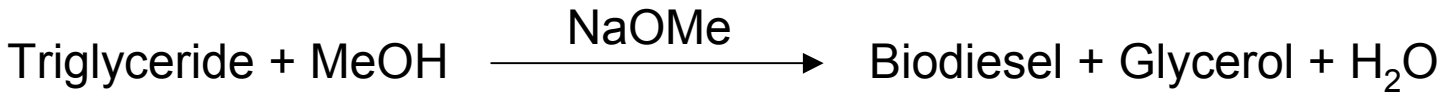
UNIVERSITY OF CAMBRIDGE

POLYMER AND FLUIDS GROUP

Recent developments in Cambridge on the implementation of Oscillatory Flow Reactor technology

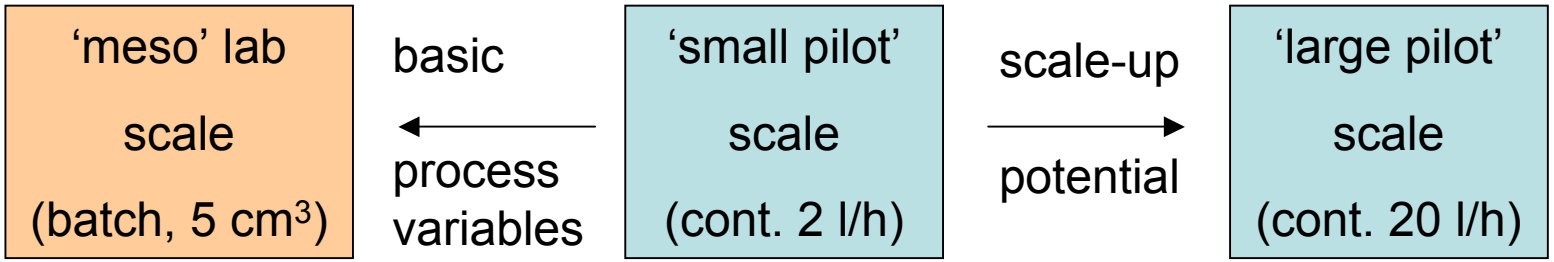
Trond E Bustnes

Biodiesel production



- normally batch process -> continuous in Cambridge
- variable conditions of T and P
- sustainable process
- CO_2 neutral
- no sulphur emissions
- lower emissions of CO, hydrocarbons, particulates
- possibly higher emissions of NO_X

Current focus



current

PhD project

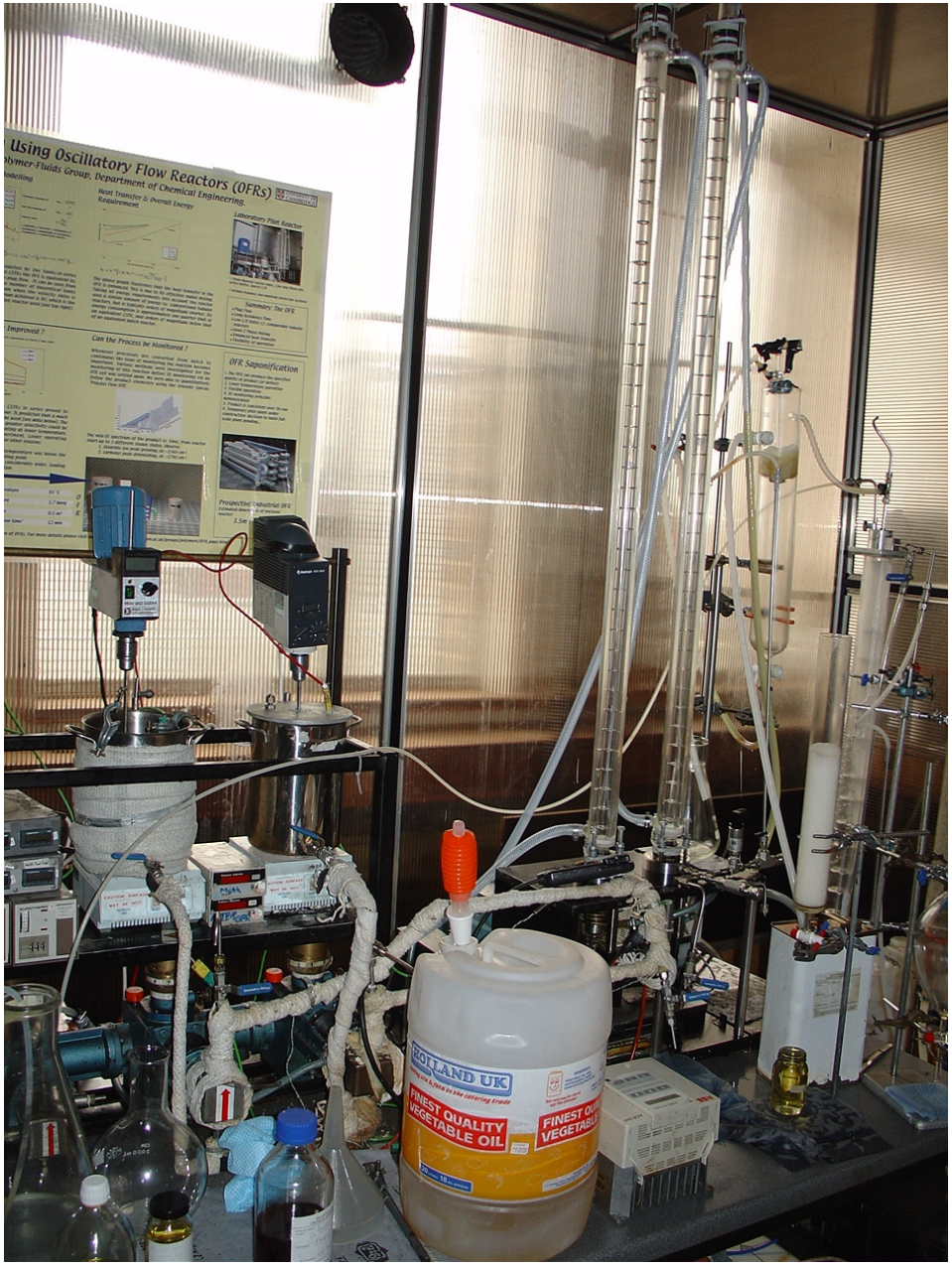
existing rig

- further expts

currently building

Joint funding:

- Carbon Trust
- KP Biofuels
- Private investor



‘small pilot’ scale

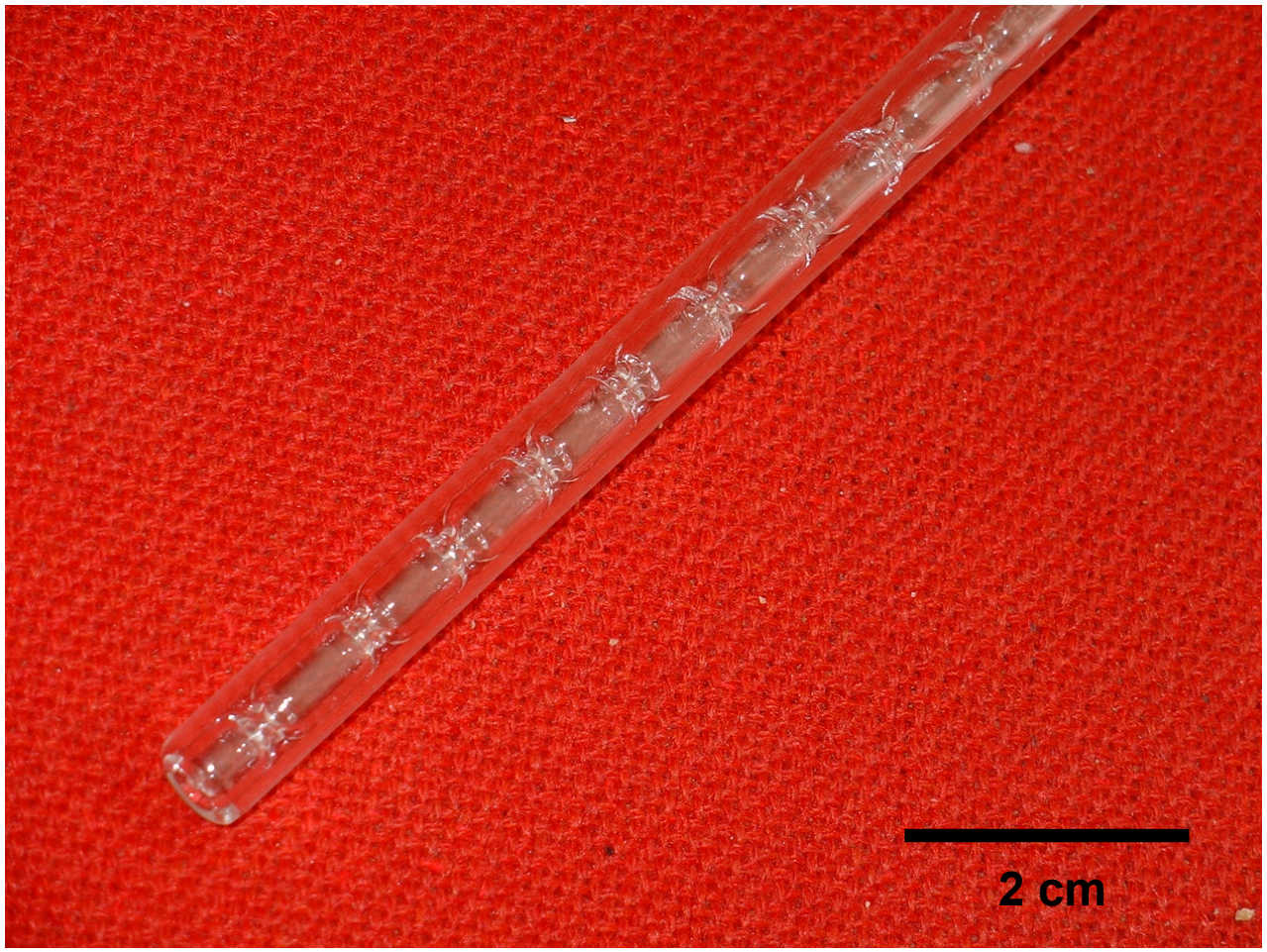
2 l/h plant run on continuous basis

- reactants:

1. MeOH + catalyst
2. vegetable oil

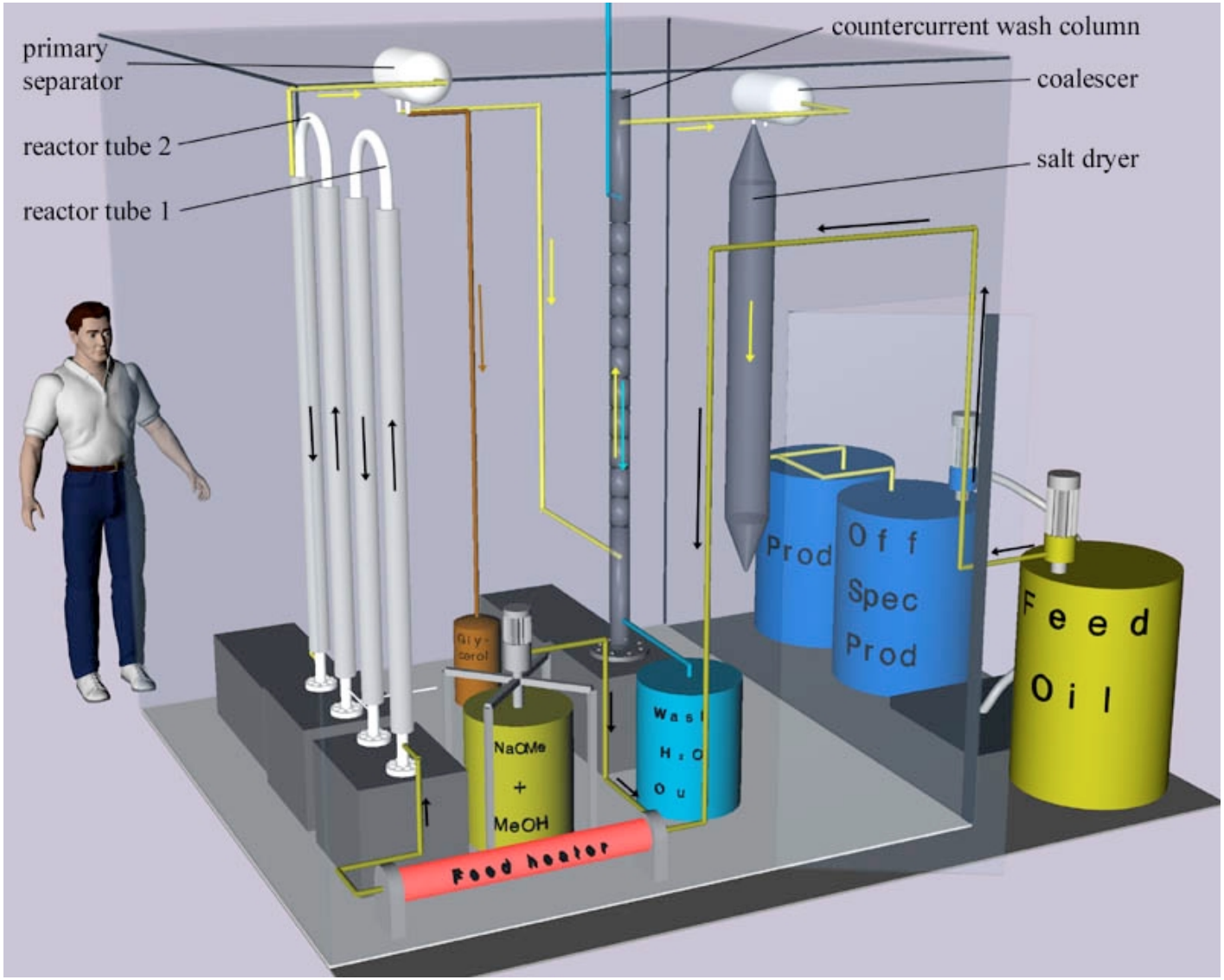
- variable T, P (< 3 bar)
- variable residence times

‘meso scale’ reactor



- batch
- volume 4.5 cm^3
- jacketed design
- small scale batch or continuous testing

‘large pilot’ plant



- 20 l/h
- enclosed continuous operation
- OFR vessel
- OFM wash column
- standard separation equipment