128th MSS-Seminar
Wednesday, August 28th, 15:30 hrs,
Seminarraum (00.156),
Cauerstraße 3, Erlangen.

New Advances in Positron Emission Particle Tracking and their Applications in Waste Plastic Recycling

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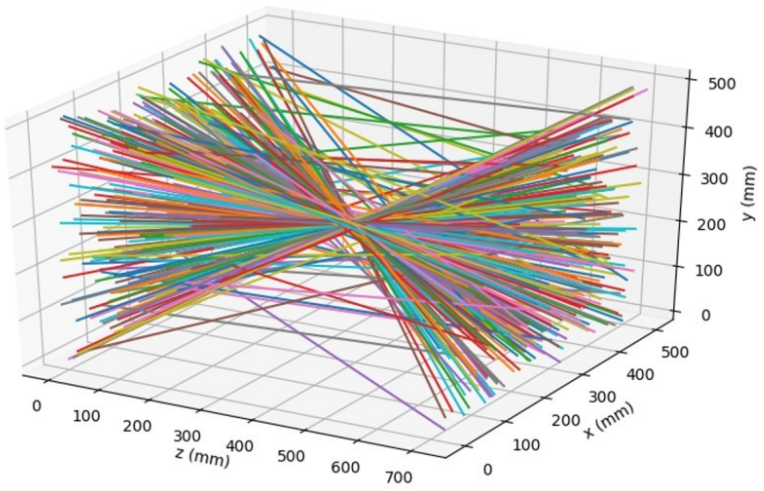

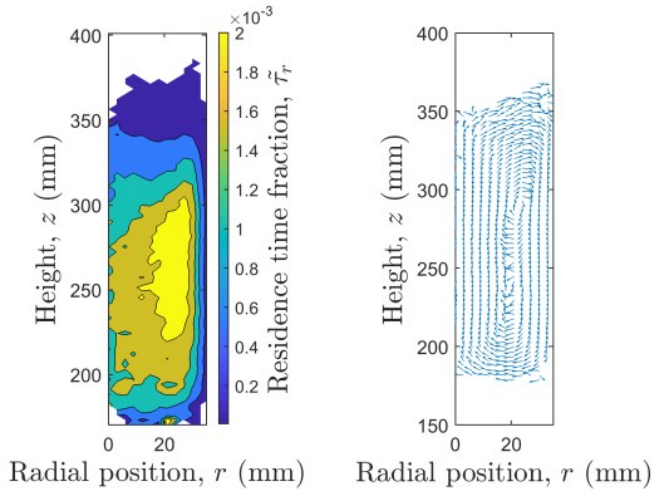

Plastic waste is one of the great environmental challenges of our time. Recently, a promising new technique has been developed, which converts waste plastics into petrochemical feedstock by injecting them into a gas-fluidised bed of heated particles. Heat transferred to the plastic cracks long-chain molecules into shorter hydrocarbons which are extracted from the system and refined into valuable petrochemical products. Despite its considerable potential, there remain significant impediments to thewidespread adoption of this technology: most notably, while the cracking and distillation processes arewell-understood, the systems' internal dynamics remain almost entirely unknown.

In this seminar, we discuss how Positron Emission Particle Tracking—a technique capable of imaging the three-dimensional motion of particles even in the interior of large, opaque systems—may be used toprovide new insight into these systems, and hence optimise their design, helping to turn this exciting concept into a commercial reality.

The seminar also discusses how recent advances applying machine learning techniques to PEPT may aid this endeavour, and how numerical modelling techniques may be used to take our understanding still further.