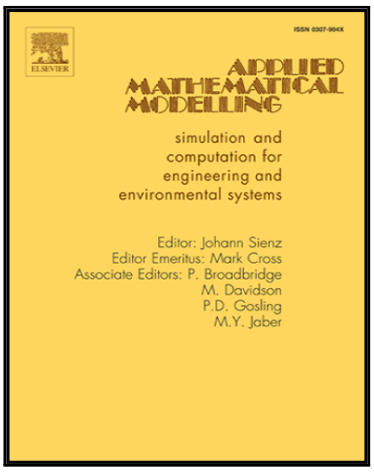

CFD investigation of hydrodynamics, heat transfer and cracking reactions in a large-scale fluidized catalytic cracking riser

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Highlights

- Hydrodynamics coupled with cracking reactions in an FCC riser were studied.
- Two-fluid mathematical approach was used to model the fluid-particle flow.
- Intricate phenomena near a series of injecting nozzles were revealed in detail.
- A recommendation of an appropriate increasing of the feed injection angle was proposed.
- Yields and reaction rates of main products and catalyst activity were investigated.