

## Preface

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### Chemical engineering research in the Netherlands

The process industry represents one of the most important economic activities in the Netherlands; more than half of the gross national product is to a large extent related to the chemical, petroleum, pharmaceutical, metallurgical and food industries. It is therefore no incidental that research in chemical engineering has a long and healthy tradition in the Netherlands. This tradition has been built up by several pioneer researchers such as Kramers, Rietema, Van Deemter, Van Heerden, Van Krevelen and Zuiderweg. University research has traditionally maintained close links with industry. Indeed, it has always been a tradition to search within industrial research establishments for suitable chair appointments.

In 1992 the Ministry of Economic Affairs made funds totalling eighteen million guilders available to the Universities for the creation of three national Graduate schools in the areas of chemical engineering, catalysis and fluid mechanics. The graduate schools in the areas of chemical engineering, catalysis and fluid mechanics. The Graduate School in Chemical Engineering (Onderzoekschool Procestechologie (OSPT)) was officially instituted on October 30, 1992 at the University of Twente with Professor W.P.M. van Swaaij as Scientific Director. All six chemical engineering departments in the Netherlands (Amsterdam, Delft, Eindhoven, Groningen, Twente and Wageningen) are affiliated to the OSPT. The opening of OSPT believed to be the first school of its kind in the world, was marked by a symposium wherein two speakers of international repute, Professors Villiermaux (Nancy, France) and Sharma (Bombay, India) gave their vision of future research. In a joint presentation Krishna (Amsterdam) and Wesselingh (Groningen) set out the OSPT objectives.

One of the activities of OSPT is to set up post-graduate level courses with professors from different universities pooling their varied expertise. OSPT courses currently offered include "A unified approach to mass transfer", "Process development strategy", "Multicomponent separation processes design", "Numerical methods" and "Crystallization". The list is growing and will in future include course on process integration, process dynamics and control. These courses are attended by research students from all universities along with industrial participants. These courses are already having a definite positive impact and have helped to bring university and industrial researchers closer together. OSPT funding has also made it possible to invite visiting professors to complement our own strengths.

A major task of the OSPT is to co-ordinate, stimulate and fund research in areas which will have the effect of improving the competitive edge of Dutch industry. A theme paper entitled *National perspectives in chemical engineering* provides an indication of the research needs and priorities in different areas; a condensed version of this document has been published (Krishna, Wesselingh and van Swaaij, *Trans. I. Chem. E.*, 70A (1992) 166–172). An industrial advisory board has been set up to help OSPT define its research direction. The initial thrust area which has been identified for research stimulus is easier scale-up by means of novel reaction or separation concepts.

This special issue of *The Chemical Engineering Journal* and *Biochemical Engineering Journal* has been brought out to commemorate the creation of OSPT and gives a flavour of the wide variety of research topics currently being pursued in the Netherlands. The eleven papers included in this issue cover diverse areas such as catalyst design and preparation, gas-solid reactions, turbulent flames, transient reactor operations, hydrodynamics of structured packings, ejectors, fluidized beds and bubble columns and biotechnological processing.

R. Krishna and J.J. Heijnen  
Department of Chemical Engineering  
University of Amsterdam  
Netherlands