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Foreword

In April 1999 a meeting took place at the Turtle Bay Hilton Hotel in Oahu, Hawaii, with the title *International Conference on Solid–Liquid Separation Systems*. The Conference was sponsored by the United Engineering Foundation, based in New York, USA. The Foundation, which was founded by the five founder societies ASCE, AIChE, IEEE, ASME and AIME, supports about 30 conferences each year for in-depth exchange of knowledge in the field of engineering worldwide. Sixty one papers, including 45 oral presentation and 17 posters, were presented at the Conference, which was attended by 75 scientists from 20 different countries.

Solid–liquid separations are operations widely used in the chemical, mining, pulp and paper, wastewater, sugar, biotechnology, pharmaceutical, ceramics and many other industries. In spite of the fact that they are generally associated with filtration, solid–liquid separations comprise many other unit operations, usually used in conjunction. The objective of these operations is to recover, or to eliminate the liquid or the solid from a suspension during the process of production or transformation of a material. In general, these operations start with physical and chemical pretreatment of the entering suspensions, where the surface characteristics of the solids are changed to promote *flocculation* or coagulation. This leads to an increase in the particle size, which will enhance the *sedimentation* during *thickening, hydrocycloning* and *centrifugation* and increase the permeability of the cake during *filtration*.

While much practical progress has been made in materials of construction, mechanical operation and control of equipment, a significant gap exists between theoretical research and its application to the design and optimization of commercial processes. This Conference was aimed to provide a review of the state-of-the-art and its relation to future developments.

The Conference was organized in five sessions: *Flocculation*, *Sedimentation*, *Filtration*, *Hydrocyclones* and *Centrifugation*. Thirty-four papers were accepted after peer review and are included in this special issue of *Separation and Purification Technology.* They cover fundamental research, modeling and advances in industrial practice for all topics. Eight papers deal with flocculation, eleven were presented in sedimentation and thickening, eight papers discuss filtration and seven papers analyze hydrocyclones. The present material, which has not been published previously, should make a significant contribution and lasting value to the technical literature on the subject.

I would like to thank the United Engineering Foundation, the National Science Foundation, the American Institute of Chemical Engineers, the American Filtration & Separation Society and the British Filtration Society for co-sponsoring this Conference. I am also grateful to my co-chairs Professors Frank Tiller and John Gregory and to the International Organizing Committee.

Special thanks are also due to the many people of the Engineering Foundation who assisted in the organization and running of this conference, notably Conferences Director Barbara Hickernell, Technical Liaison Herman Bieber, West Coast Liaison Antoinette Chartier, Conferences Committee Liaison, Conferences Supervisors Donna Romano and Rosa and Connie Landinez. Finally our acknowledgement to the authors and session chairs for their invaluable contributions.

A follow-on meeting, Solid–Liquid Separation Systems II, is planned for October 2001 in Davos, Switzerland.

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