



## ***Introduction to Solid/Liquid***

### ***Separation I - Principles***

**Instructors: Dr. Wu Chen, Dr. Wenping Li, Mr. Chris Wallace, Dr. Lin Zhao**

**Course: 8:00 am – 12:00 pm, .4 CEUs**

This course is to introduce the basics of solid/liquid separation (or called liquid filtration) from industrial application perspective. Practical information and examples will be used to relate to fundamentals. It is designed for people who are new to the filtration industry either in technical, sales, or business functions. It is also a very good course for those who have been in this industry for a while to get a better understanding of correlating fundamentals to practical applications. With the wide spectrum of solids/liquid separation technology and to meet audience's interests, this course is designed into two parts, I & II. Each part can be taken independently but it is recommended to take both.

In part I, simple underlining principles of key solid/liquid separation technologies, liquid filter media types and selection criteria will be presented. Technologies to improve filtration and separation such as filter aid, coagulation and flocculation are also part of the curriculum.

#### Course Outline

1. Introduction
2. Particles and Liquid Properties
3. Principles of Solid/Liquid Separation
4. Liquid Filtration Media
5. Pretreatment
  - 5-1 Filter Aids
  - 5-2 Coagulation & Flocculation

### **Dr. Wu Chen:**



Dr. Wu Chen is a Principal Research Scientist at Dow. He has over 30 years of industrial experience in solid/liquid separation and air/gas filtration, on both technologies and filtration markets. He also has expertise in project management, process design, and plant startup. He has been teaching this course in numerous organizations and countries for over 25 years. He is currently the chair of AFS Education Committee and the coordinator of AFS short courses. He has served as the chair of AFS, board of directors, conference chairs, local chapter officers and various committee members. He was awarded AFS Frank Tiller Award for outstanding technical achievements, AFS Well Shoemaker Award for leadership and service to the filtration industry and Fellow Member Award for sustained significant contributions to filtration technologies and filtration industry.

### **Dr. Wenping Li:**



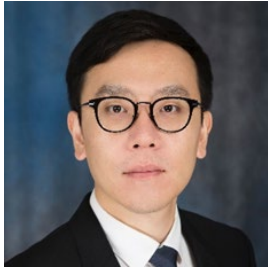
Dr. Wenping Li is the R&D Director of Agrilectric Research Company, with over 20 years of industrial filtration and separation experience. Before joining Agrilectric, she worked with Prof. Frank M. Tiller, the father of modern filtration theory, at the University of Houston from which she built in depth understanding of fundamentals in solid/liquid separations. She has 2 patents, over 40 publications, including contributions to Perry's Chemical Engineers' Handbook and Albright Chemical Engineering Handbook. Wenping joined AFS in 1999 and served as the AFS chair in 2012. She has served as a Board of Director, Chapter Affair Committee Chair, and Student Poster Competition Chair for AFS. She received AFS Frank Tiller Award in 2014, and AFS Fellow Award in 2021. She is the Technical CoChair for WFC13 in October 2022, and Co-Chair for AFS FiltCon in 2023.

### **Mr. Chris Wallace:**



Mr. Chris Wallace is the VP of Technology and Sr. Corporate VP for Filtration Technology Corporation (FTC) in Houston, TX. Since he joined FTC in 2003, he has been involved in production engineering, application engineering, research and development, and technical sales and marketing of filtration and separation products for liquid/solid, gas/solid, liquid/liquid, and gas/liquid applications. He holds a B.S. in Biomedical Engineering from Tulane University. Chris is actively involved in the American Filtration and Separation Society (AFS). He served as chairman of the AFS in 2014-2015. He was President of the SW Chapter in 2010-2012 and was on the Board of Directors in 2016-2018 and is currently serving on the board of directors for the 2019-2021 & 2021-2023 terms. He is also vice chair of the education committee, a member of the corporate sponsors committee, co-instructor of the Introduction to Liquid Filtration course for the society and serves on the advisory committee for the SW Chapter.

## **Dr. Lin Zhao:**



Dr. Lin Zhao is an Associate Research Scientist at Dow. His research at Dow focuses on solid-liquid separation with 6 years of practical industrial experience from lab. evaluation, filter design, pilot trial to production scale implementation. He also has experiences in major site startup and operation. Before joining Dow, he obtained his Ph.D. degree in Chemical Engineering at the Ohio State University in Dr. W.S. Winston Ho's group with the research focus on developing advanced membranes for water desalination and gas separation. Lin joined the American Filtration and Separations Society (AFS) in 2015 and has been actively involved in AFS since then. He is currently a member of the AFS Board of Directors and chairman of the Publication Committee. He will serve as a Conference Co-Chair of the 2022 AFS FiltCon.