



FLUIDIZATION SEMINAR AND WORKSHOP MADRID, SPAIN MARCH 30TH – APRIL 2ND, 2020

MONDAY, MARCH 30TH 2020

08:00	REGISTRATION
08:20	INTRODUCTION TO PSRI AND ITS TECHNICAL PROGRAMS
08:30	A. INTRODUCTION AND OVERVIEW
	1. INTRODUCTION, TERMINOLOGY, AND PARTICULATE PROPERTIES
	2. FLUIDIZATION REGIMES AND TRANSITIONS
10:30	BREAK
10:45	3. HYDRODYNAMICS OF FLUIDIZED BEDS
	-EFFECTS OF TEMPERATURE AND PRESSURE
12:00	LUNCH (PROVIDED)
13:00	4. GAS AND SOLIDS MIXING
14:45	BREAK
15:00	5. GAS SOLIDS CONTACTING, REACTION, MODELLING AND SCALE-UP
	6. HEAT TRANSFER
17:00	ADJOURN

- 08:00 B. OVERVIEW OF INDUSTRIAL APPLICATIONS**
- 09:00 C. GRIDS AND PARTICLE ATTRITION**
- **INTRODUCTION TO GRIDS (PRESSURE DROP ACROSS GRID)**
 - **DESIGN OF VARIOUS TYPES OF GRIDS**
 - **PERFORATED PLATE**
 - **PIPE/SPARGER**
 - **EFFECT OF SHROUDS**
 - **JET PENETRATION**
 - **EFFECTS OF TEMPERATURE AND PRESSURE**
- 10:00 BREAK**
- 10:15 C. GRIDS AND PARTICLE ATTRITION (CONTINUED)**
- **SOURCES OF ATTRITION**
 - **PARTICLE ATTRITION AT SUBMERGED JETS**
 - **GRID DESIGN**
 - **EFFECTS OF TEMPERATURE AND PRESSURE**
 - **PARTICLE ATTRITION IN CYCLONES**
- 11:30 D. WORKSHOP ON GRID DESIGN**
- 12:00 LUNCH (PROVIDED)**
- 13:00 E. PARTICLE ENTRAINMENT & ELUTRIATION**
- **INTRODUCTION**
 - **MECHANISMS OF EJECTION INTO FREEBOARD**
 - **SOLID FLUX PROFILE AND TDH**
 - **CORRELATION FOR BUBBLING & TURBULENT BEDS**
- 15:00 BREAK**
- 15:15 E. PARTICLE ENTRAINMENT & ELUTRIATION (CONTINUED)**
- **ENTRAINMENT CORRELATION**
 - **EFFECTS OF GEOMETRY**
 - **ENTRAINMENT FROM RISERS**
 - **EFFECTS OF TEMPERATURE AND PRESSURE**
- 16:15 F. WORKSHOP ON ENTRAINMENT**
- **FCC/POLYETHYLENE EXAMPLES**
- 17:00 ADJOURN**

- 08:00** **G. CYCLONE DESIGN**
- PRINCIPLE OF OPERATION
 - DIPLEG PRESSURE BALANCE
 - DIFFERENT CYCLONE TYPES
 - EFFECT OF DIFFERENT CONFIGURATIONS
 - EFFECTS OF TEMPERATURE AND PRESSURE
 - CYCLONE DIPLEGS
 - FLAPPER & TRICKLE VALVES
- 10:00** **BREAK**
- 10:15** **G. CYCLONE DESIGN (CONTINUED)**
- DESIGN PROCEDURE
 - COLLECTION EFFICIENCY
 - CYCLONE DESIGN CALCULATION
- 12:00** **LUNCH (PROVIDED)**
- 13:00** **H. WORKSHOP ON CYCLONES**
- 14:00** **I. STANDPIPES**
- THEORY OF OPERATION
 - TYPES OF STANDPIPES
 - AERATION & ITS EFFECTS
 - STANDPIPE CAPACITY
 - ANGLED STANDPIPES
- 15:00** **BREAK**
- 15:15** **I. STANDPIPES (CONTINUED)**
- STRIPPING
 - NON-MECHANICAL VALVES
- 17:00** **ADJOURN**

- 08:00** **J. DILUTE-PHASE PNEUMATIC CONVEYING & CIRCULATING FLUIDIZED BEDS**
- VERTICAL & HORIZONTAL FLOW
 - PRESSURE DROP CALCULATIONS
 - CALCULATION OF CHOKING, SALTATION
 - BENDS
 - FEEDING CONSIDERATIONS
- 10:00** **BREAK**
- 10:15** **K. DENSE-PHASE PNEUMATIC CONVEYING**
- PACKED-BED FLOW
 - FLUIDIZED-BED FLOW
 - SLUG FLOW
 - EQUIPMENT TYPE
- 11:30** **LUNCH (PROVIDED)**
- 12:30** **L. PARTICLE ATTRITION**
- TYPES OF ATTRITION
 - ATTRITION TESTING AND MODELING
- 13:30** **M. MODELING GRANULAR-FLUID SYSTEMS**
- TYPES OF MODELS
 - COMMON PITFALLS
- 15:00** **BREAK**
- 15:15** **M. MODELING GRANULAR-FLUID SYSTEMS (CONTINUED)**
- EXAMPLES
- 16:00** **CONCLUSION OF SEMINAR**