

**Mathematical Modelling for Bioprocesses,
Wastewater Treatment and Mineral Processing**
Third CI²MA Workshop, organized jointly with CRHIAM
Universidad de Concepción, September 27 and 28, 2017
Auditorio Alamiro Robledo, Facultad de Ciencias Físicas y Matemáticas
Organizers¹: Fernando Betancourt & Raimund Bürger

Programme

15.00 Registration

15.15 Welcome

Session 1: Models of sedimentation in mineral processing

15.30 **Julio Careaga** (Universidad de Concepción):
Modelling and numerical simulation of sedimentation in conical vessels

16.00 **Manuel Larenas, Pamela Garrido** (Centro de Investigación JRI, Chile):
Numerical simulation of solid-liquid separation
applied to industrial thickening of mining slurries

16.30 **Alonso Pereira, Fernando Betancourt,
Fernando Concha, Daniel Sbárbaro** (Universidad de Concepción):
Process dynamics and control of industrial thickeners

17.00 Coffee break

Session 2: Multi-species systems

17.30 **Pep Mulet** (Universitat de València, Spain):
Implicit-explicit conservative schemes
for the equilibrium dispersive model of chromatography

18.00 **M. Carmen Martí** (Universidad de Concepción):
Unified multi-class framework to model settling tanks
in water resource recovery facilities

18.30 **Diana Celi, Fernando Concha, Christian Goñi** (Universidad de Concepción):
Determination of the volumetric solids fraction
of saturated polydisperse ore tailing sediments

20.30 Workshop Dinner

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Session 3: Flotation, tailings, and slurry flow in mineral processing

- 09.30** **Stefan Diehl** (Lund University, Sweden):
A model of a flotation column described by a conservation law
with multiply discontinuous flux
- 10.00** **Claudia Castillo** (CSIRO Minerals Chile), **Christian Ihle** (Universidad de Chile):
Effect of salinity on the dynamics of flocculation
of copper sulphide tailings with clay content
- 10.30** **Cristian Reyes**, **Christian Ihle** (Universidad de Chile):
CFD simulation of cation exchange in slurry pipeline flow
- 11.00** **Coffee break**

Session 4: Reactive models

- 11.30** **Elena Torfs** (ModelEau, Université Laval, Québec, Canada):
Full scale measurements and model development
for reactive settling of activated sludge
- 12.00** **Elisa Giustinianovich** (Universidad de Concepción), **José Luis Campos-Gómez**,
Camilo Mejías, **Marlene Roedel** (Universidad de Concepción):
Granular partial nitrification/Anammox process: why modelling and main challenges
- 12.30** **Camilo Mejías** (Universidad de Concepción):
Modelling biofilm growth in a granular sludge bioreactor