Process Systems Engineering (PSE)

Holistic modelling approach and systematic methods and tools for decision making support in Process Systems.

- Process flowsheeting
- Metamodelling
- Machine Learning
- Multi-scale modeling
- Ontologies and knowledge models

Optimization

\[ \min f(x) \]

\[ \text{s. t.} \]

\[ g_i(x) \leq 0 \]

\[ h_j(x) = 0 \]

Performance Assessment

- Total Cost
- Net Present Value
- Controllability
- Robustness
- Toxicity
- CO₂ emissions
- Life Cycle Assessment

Applications

- Energy integration
- Water networks
- Industrial Symbiosis
- Circular Economy
- Advanced Oxidation Processes

Indicators (for 3 years period)

- 40 Papers (30 first quartil: Chemical Engineering)
- 550 quotes
- 9 PhDs
- 150 Conference contributions
- Interchanges (Purdue Univ., Carnegie Mellon University, Imperial College, Campinas...)
- Results transfer: TRAGSA / ADASA / AENOR / ASPEN / CO-LaN
- Local entities (environmental control)
- Punctual Projects: IDOM, TRADEBE, ...

Center for Process and Environmental Engineering (CEPIMA)

Web site of scientific production https://futur.upc.edu/CEPIMA

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