FERNANDO DANIEL MELE

Date and place of birth: 30th November, 1975, Tafí Viejo, Argentina.

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Education

M.Sc., Chemical Engineering: Universitat Politècnica de Catalunya, Spain, 2004.

Chemical Engineer: Universidad Nacional de Tucumán, Argentina, 2000 (Average mark: 9,29/10).

Industrial Chemistry and Sugar Industry Technician: Escuela de Agricultura y Sacarotecnia, Universidad Nacional de Tucumán, Argentina, 1994.

Present position

Ph. D. Student: Chemical Engineering Department, Universitat Politècnica de Catalunya, Spain.

Current research and interests

Design and Upgrade of Tools for Decision Making Support in Supply Chain Management (SCM): Ongoing research includes integration of multiple analytical tools such as optimization algorithms, forecasting techniques, production scheduling and risk management.

Uncertainty Handling in SCM through Simulation: It includes optimization combined with discrete even simulation strategies for improving the supply chain performance.

Consideration of Environmental Aspects in SCM: This research is aimed to the application of Life-Cycle Assessment (LCA) principles to the environmental impact measurement and analysis.

Moreover, interests range all the Process System Engineering field, with emphasis in separation operations, automatic control, process simulation and optimization, and biochemical processes.

Journal articles

- **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Supply Chain Management through Dynamic Model Parameters Optimization Using Genetic Algorithms*. Ind. & Eng. Chem. Res. (submitted)

- Guillén G.; **Mele**, F. D.; Bagajewicz, M.; Espuña, A.; Puigjaner, L. *Multiobjective Supply Chain Design under Uncertainty*. Chemical Engineering Science, 60, 1535-1553, 2005.

Conference participation (most relevant)

- Guillén, G.; **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Integrating short-term budgeting into multi-site scheduling under uncertainty by means of a team of agents*. European Symposium on Computer Aided Process Engineering (ESCAPE-15), Barcelona, Spain, 2005.

- **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Supply Chain Management through a combined simulation-optimization approach*. European Symposium on Computer Aided Process Engineering (ESCAPE-15), Barcelona, Spain, 2005.

- **Mele**, F. D.; Musulin, E.; Puigjaner, L. *Supply chain monitoring: a statistical approach*. European Symposium on Computer Aided Process Engineering (ESCAPE-15), Barcelona, Spain, 2005.

- **Mele**, F. D.; Guillén, G.; Espuña, A.; Urbano, F.; Puigjaner, L. *A novel agent-based approach for supply chain retrofitting*. Sixth International Conference on Foundations Of Computer-Aided Process Design (FOCAPD 2004), Princeton, USA, 2004.

- Bonfill, A,; Arbiza, M. J.; Cantón, J.; Guillén, G.; **Mele**; F. D.; Espuña, A.; Puigjaner, L. *Metaheuristic multiobjective optimization approach for the scheduling of multiproduct plants*. PRES, Praha, Czech Rep., 2004.

- Guillén, G.; **Mele**, F. D.; Badell, M.; Espuña, A.; Puigjaner, L. *Studying the use of mathematical programming and heuristics in supply chain management.* AIChE Annual Meeting 2004, Austin, USA, 2004.

- **Mele**, F. D.; Guillén, G.; Espuña, A.; Puigjaner, L. *Integrated agent-based simulation of supply chain management.* AIChE Annual Meeting 2004, Austin, USA, 2004.

- Pina, C.; **Mele**, F. D.; Espuña, A.; Puigjaner, L. Integrated negotiation model into a multi-agent supply chain system. AIChE Annual Meeting 2004, Austin, USA, 2004.

- Guillén, G.; **Mele**, F. D.; Bagajewicz, M.; Espuña, A.; Puigjaner, L. *Simultaneous management of financial and consumer satisfaction risk in multiobjective batch plant design within a supply chain*. European Symposium on Computer Aided Process Engineering (ESCAPE-13), Lappeenranta, Finland, 2003.

- **Mele**, F. D.; Bagajewicz, M.; Espuña, A.; Puigjaner, L. *Financial risk control in a discrete event supply chain*. European Symposium on Computer Aided Process Engineering (ESCAPE-13), Lappeenranta, Finland, 2003.

- **Mele**, F. D.; Forquera, F.; Rosso, E.; Basualdo, M.; Puigjaner, L. *Control strategies application for solving a supply chain problem*. ECCE-4, Granada, Spain, 2003.

- **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Environmental impact considerations into supply chain management based on Life-Cycle Assessment*. 53rd Canadian Chemical Engineering Conference, Hamilton, Canada, 2003.

- Guillén, G.; **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Studying the use of mathematical programming and heuristics in supply chain management*. AIChE Annual Meeting 2003, San Francisco, USA, 2003.

- Bonfill, A.; **Mele**, F. D.; Sequeira, S. E.; Puigjaner, L. *Metaheuristic-multiobjective optimization approach for the scheduling of multiproduct plants*. 9º Cong. Medit. de Ing. Quím., Barcelona, Spain, 2002.

- **Mele**, F. D.; Forquera, F.; Rosso, E.; Basualdo, M.; Puigjaner, L. *A comparison between classical and model predictive control over supply chain dynamic model*. 9º Cong. Medit. de Ing. Quím., Barcelona, Spain, 2002.

- **Mele**, F. D.; Espuña, A.; Puigjaner, L. *Discrete event simulation for supply chain management*. AIChE Annual Meeting 2002, Indianapolis, EEUU, 2002.

- **Mele**, F. D.; Guillén, G.; Bonfill, A.; Espuña, A.; Puigjaner, L. *Integration of batch plant into a supply chain network under uncertainty*. AIChE Annual Meeting 2002, Indianapolis, USA, 2002.

- Vilches de Farolfi, H.; Albarracín, P. M.; **Mele**, F. D. *Esters of saccharose effect on the surface tension*. III Congreso Iberoamericano de Ingeniería de Alimentos, Valencia, Spain, 2001.

Participation in R+D projects

Virtual Plant-Wide Management and Optimization of Responsive Manufacturing Networks (VIP-NET), GROWTH, Contract Nº G1RD-CT-2000-00318, European Community, January 2001 - December 2003. Main researcher: Luis Puigjaner.

Gestió Integral de la Cadena de Subministraments Ampliada i Distribuïda (GICASA-D) (Supply Chain Management), Generalitat de Catalunya, April 2002 (in course). Main researcher: Luis Puigjaner.

Desarrollo e Implementación de un Sistema de Gestión y Optimización de Cadena de Suministro Global en Tiempo Real (OCCASION) (Supply Chain Management), DPI2002-00856, Ministerio de Educación, Cultura y Deporte, Spain, January 2003 (in course). Main researcher: Luis Puigjaner.

Awards, Honors and Special Appointments

- Research fellowship from Generalitat de Catalunya (FI), Spain (2002-. . .)
- Prize of the National Academy of Engineering, Argentina (2001).
- Research fellowship from Science and Technology Secretary, Universidad Nacional de Tucumán, Argentina (1999-2001).
- Flag bearer of the Facultad de Ciencias Exactas y Tecnología, Universidad Nacional de Tucumán, Argentina (2000).

Languages

- Spanish (native).
- English (First Certificate Level)
- Catalan (Nivell B).
- Italian.

Software tools

- *Microsoft Office 2000/2003* (*Word*, *Excel*, *Power Point*). Software for *Latex*.
- *MATLAB*. Mathematical software of general purposes, with emphasis into specific toolboxes for general simulation (*Simulink*) and building of discrete-event systems (*Stateflow*). Besides: *Statistics Toolbox*, *Fuzzy Logic Toolbox*, etc.
- *GAMS*. Optimization software based on mathematical programming.
- Software for chemical processes simulation and optimization (*HYSYS*, *ASPEN Plus*, etc.).