Prof. Massimiliano Barolo

List of publications

(last updated: August 27, 2025)

Papers in peer-reviewed journals

1. Baldea, M., E. E. Endler, E. Hale, C. T. Maravelias, M. Barolo, I. Harjunkoski, M. Mercangoz, S. L. Shah, M. Soroush, B. R. Young and Q. Zhang (2025). Transforming the process industries through electrification: challenges & opportunities. *Ind. Eng. Chem. Res.*, **64**, 16466-16478.
2. García-Carrión, S., F. Sartori, J. Borràs-Ferrís, P. Facco, M. Barolo and A. Ferrer (2025). On the equivalence between null space and orthogonal space in latent variable regression modeling. *J. Chemom*., **39**, e70057.
3. Mohr, F., E. Arnese-Feffin, M. Barolo and R. D. Braatz (2025). Smart process analytics for process monitoring. *Computers Chem. Eng.*, **194**, 108918.
4. Beccaro, L., P. Facco, R. J. Dhenge, M. J. Khala, F. Cenci, F. Bezzo and M. Barolo (2024). Accelerating pharmaceutical tablet development by transfer of powder compaction equipment across types and scales. *Int. J. Pharm.*, **667**, 124904.
5. Zhu, Q., P. Facco, Z. Zhao and M. Barolo (2024). Capturing connectivity information from process flow diagrams by sequential-orthogonalized PLS to improve soft-sensor performance. *Chemom. Intell. Lab. Sys.*, **252**, 105192.
6. Arnese-Feffin, E., P. Facco, F. Bezzo and M. Barolo (2024). Systematizing product design by latent-variable modeling – A unifying framework for the formulation and solution of PLS model inversion problems. *Chem. Eng. Sci.*, **299**, 120505.
7. Cenci, F., S. Diab, P. Ferrini, C. Harabajiu, M. Barolo, F. Bezzo and P. Facco (2024). Predicting drug solubility in organic solvents mixtures: A machine-learning approach supported by high-throughput experimentation. *Int. J. Pharm.*, **660**, 124233.
8. Arnese-Feffin, E., P. Facco, D. Turati, F. Bezzo and M. Barolo (2024). Understanding fouling in an industrial biorefinery membrane separation process by feature-oriented data-driven modeling. *Ind. Eng. Chem. Res.*, **63**, 8847-9304.
9. Jul-Jørgensen, I., P. Facco, K. V. Gernaey, M. Barolo and C. A. Hundahl (2024). Data fusion of Raman spectra in MSPC for fault detection and diagnosis in pharmaceutical manufacturing. *Computers Chem. Eng.*, **184**, 108647.
10. Gasparini, L, A. Benedetti, G. Marchese, C. Gallagher, P. Facco and M. Barolo (2024). On the use of machine learning to generate *in-silico* data for batch process monitoring under small-data scenarios. *Computers Chem. Eng.*, **180**, 108469.
11. Arnese-Feffin, E., P. Facco, D. Turati, F. Bezzo and M. Barolo (2024). Hybrid modeling of a biorefinery separation process to monitor short-term and long-term membrane fouling. *Chem. Eng. Sci.*, **283**, 119413.
12. Sartori, F., P. Facco, F. Zuecco, F. Bezzo and M. Barolo (2023). Optimal indicator-variable approach for trajectory synchronization in uneven-length multiphase batch processes. *Ind. Eng. Chem. Res.*, **62**, 18511-18525.

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14. Castaldello, C., P. Facco, F. Bezzo, C. Georgakis and M. Barolo (2023). Data-driven tools for the optimization of a pharmaceutical process through its knowledge-driven model. *AIChE J.*, **69**, e17925.
15. Destro, F, M. Barolo and Z. K. Nagy (2023). Quality-by-control of intensified continuous filtration-drying of active pharmaceutical ingredients. *AIChE J.*, **69**, e17926.
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17. Arnese-Feffin, E., P. Facco, F. Bezzo and M. Barolo (2022). Digital design of new products: accounting for output correlation via a novel algebraic formulation of the latent-variable model inversion problem. *Chemom. Intell. Lab. Sys.*, **227**, 104610.
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20. Destro, F. and M. Barolo (2022). A review on the modernization of pharmaceutical development and manufacturing – Trends, perspectives, and the role of mathematical modeling. *Int. J. Pharm.*, **620**, 121715.
21. Geremia, M., G. Bano, E. Tomba, M. Barolo and F. Bezzo (2022). Practical use of primary drying models in an industrial environment with limited availability of equipment sensors. *Int. J. Pharm.*, **619**, 121699.
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28. De-Luca, R, G. Bano, E. Tomba, F. Bezzo and M. Barolo (2020). Accelerating the development and transfer of freeze-drying operations for the manufacturing of biopharmaceuticals by model-based design of experiments. *Ind. Eng. Chem. Res.*, **59**, 20071-20085.

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36. De-Luca, R., M. Trabuio, M. Barolo and F. Bezzo (2018). Microalgae growth optimization in open ponds with uncertain weather data. *Computers Chem. Eng.*, **117**, 410-419.
37. Bano, G., P. Facco, F. Bezzo and M. Barolo (2018). Probabilistic design space determination in pharmaceutical product development: a Bayesian/latent variable approach. *AIChE J.*, **64**, 2438-2449.
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Papers in peer-reviewed Proceedings

1. Arnese-Feffin, E., P. Facco, D. Turati, F. Bezzo, M. Barolo (2023). Troubleshooting high-pressure issues in an industrial biorefinery process by feature-oriented modeling. In: *Computer-Aided Chemical Engineering 52, Proc. of the 33th European Symposium on Computer Aided Process Engineering* (A. Kokossis, M.C. Georgiadis, E. Pistikopoulos, Eds.), Elsevier, Amsterdam (The Netherlands), 163-168.
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