

## **Prof. Massimiliano Barolo**

### **List of publications**

(last updated: September 28, 2019)

#### Papers in peer-reviewed journals

1. Palací-López, D., P. Facco, M. Barolo and A. Ferrer (2019). New tools for the design and manufacturing of new products based on latent variable model inversion. *Chemom. Intell. Lab. Sys.*, **194**, 103848.
2. Bano, G., P. Facco, M. Ierapetritou, F. Bezzo and M. Barolo (2018) Design space maintenance by online model adaptation in pharmaceutical manufacturing. *Computers Chem. Eng.*, **127**, 254-271.
3. Benedetti, A., J. Khoo, S. Sharma, P. Facco, M. Barolo and S. Zomer (2019). Data analytics on raw material properties to accelerate pharmaceutical drug development. *Int. J. Pharm.*, **563**, 122-134.
4. De-Luca, R., M. Trabuiio, M. Barolo and F. Bezzo (2018). Microalgae growth optimization in open ponds with uncertain weather data. *Computers Chem. Eng.*, **117**, 410-419.
5. 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.
6. Bano, G., Z. Wang, P. Facco, F. Bezzo, M. Barolo and M. Ierapetritou (2018). A novel and systematic approach to identify the design space of pharmaceutical processes. *Computers Chem. Eng.*, **115**, 309-322.
7. Castaldello, C., F. Galvanin, A. Casonato, R. Padrini, M. Barolo and F. Bezzo (2018). A model-based protocol for the diagnosis of von Willebrand disease (2018). *Can. J. Chem. Eng.*, **96**, 628-638.
8. Ferrari, M., F. Galvanin, M. Barolo, V. Daidone, R. Padrini, F. Bezzo and A. Casonato (2018). A mechanistic model to quantify von Willebrand factor release, survival and proteolysis in patients with von Willebrand disease. *Thromb. Haemost.*, **118**, 309-319.
9. Herwig, C., J. Glassey, N. Kockmann, K. Gernaey and M. Barolo (2017). Better by design. *TCE – The Chem. Eng.*, **Sept.**(915), 41-43.
10. Dal-Pastro, F., P. Facco, E. Zamprogna, F. Bezzo and M. Barolo (2017). Model-based approach to the design and scale-up of wheat milling operations – Proof of concept. *Food Bioprod. Process.*, **106**, 127-136.
11. Ferrari, M, V. Pengo, M. Barolo, F. Bezzo and R. Padrini (2017). Assessing the relative potency of (S)- and (R)-warfarin with a new PK-PD model, in relation to *VKORC1* genotypes. *Eur. J. Clin. Pharmacol.*, **73**, 699-707.
12. Bano, G., P. Facco, N. Meneghetti, F. Bezzo and M. Barolo (2017). Uncertainty back-propagation in PLS model inversion for design space determination in pharmaceutical product development. *Computers Chem. Eng.*, **101**, 110-124.
13. Facco, P., A. C. Santomaso and M. Barolo (2017). Artificial vision system for particle size characterization from bulk materials. *Chem. Eng. Sci.*, **164**, 246-257.
14. Bonvin, D., C. Georgakis, C. C. Pantelides, M. Barolo, M. A. Grover, D. Rodrigues, R. Schneider and D. Dochain (2016). Linking models and experiments. *Ind. Eng. Chem. Res.*, **55**, 6891-6903.
15. Dal-Pastro, F., P. Facco, F. Bezzo, E. Zamprogna and M. Barolo (2016). Data-driven modeling of milling and sieving operations in a wheat milling process. *Food Bioprod. Process.*, **99**, 99-108.

16. Meneghetti, N., P. Facco, F. Bezzo, C. Himawan, S. Zomer and M. Barolo (2016). Knowledge management in secondary pharmaceutical manufacturing by mining of data historians – A proof-of-concept study. *Int. J. Pharm.*, **505**, 394-408.
17. Galvanin, F., R. Marchesini, M. Barolo, F. Bezzo and M. Fidaleo (2016). Optimal design of experiments for parameter identification in electro dialysis models. *Chem. Eng. Res. Des.*, **105**, 107-119.
18. Largoni, M., P. Facco, D. Bernini, F. Bezzo and M. Barolo (2015). Quality-by-Design approach to monitor the operation of a batch bioreactor in an industrial avian vaccine manufacturing process. *J. Biotechnol.*, **211**, 87-96.
19. Facco, P., F. Dal Pastro, N. Meneghetti, F. Bezzo and M. Barolo (2015). Bracketing the design space within the knowledge space in pharmaceutical product development. *Ind. Eng. Chem. Res.*, **54**, 5128-5138.
20. Meneghetti, N., P. Facco, F. Bezzo and M. Barolo (2014). A methodology to diagnose process/model mismatch in first-principles models. *Ind. Eng. Chem. Res.*, **53**, 14002-14013.
21. Galvanin, F., M. Barolo, R. Padrini, A. Casonato and F. Bezzo (2014). A model-based approach to the automatic diagnosis of Von Willebrand disease. *AIChE J.*, **60**, 1718-1727.
22. Ottavian, M., M. Barolo and S. García-Muñoz (2014). Multivariate image and texture analysis to investigate the erosion mechanism of film-coated tablets: An industrial case study. *J. Pharm. Innov.*, **9**, 5-15.
23. Ottavian, M., L. Fasolato, L. Serva, P. Facco and M. Barolo (2014). Data fusion for food authentication: fresh/frozen-thawed discrimination in west African goatfish (*Pseudupeneus prayensis*) fillets. *Food Bioprocess Technol.*, **7**, 1025-1036.
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26. Facco, P., M. Largoni, E. Tomba, F. Bezzo and M. Barolo (2014). Transfer of process monitoring models between plants: Batch systems. *Chem. Eng. Res. Des.*, **92**, 273-284.
27. Galvanin, F., E. De Luca, G. Ferrentino, M. Barolo, S. Spilimbergo and F. Bezzo (2014). Bacterial inactivation on solid food matrices through supercritical CO<sub>2</sub>: A correlative study. *J. Food. Eng.*, **120**, 146-157.
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30. Ottavian, M., M. Barolo and S. García-Muñoz (2013). Maintenance of machine vision systems for product quality assessment. Part I. Addressing changes in lighting conditions. *Ind. Eng. Chem. Res.*, **52**, 12309-12318.
31. Ottavian, M., L. Fasolato, P. Facco e M. Barolo (2013). Foodstuff authentication from spectral data: toward a species-independent discrimination between fresh and frozen-thawed fish samples. *J. Food Eng.*, **119**, 765-775.

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37. Tomba, E., M. Barolo and S. García-Muñoz (2012). General framework for latent variable model inversion for the design and manufacturing of new products. *Ind. Eng. Chem. Res.*, **51**, 12886-12900.
38. Ottavian, M., P. Facco, L. Fasolato, and M. Barolo (2012). Multispectral data classification using similarity factors. *Chemom. Intell. Lab. Syst.*, **118**, 13-23.
39. Ottavian, M., P. Facco, M. Barolo, P. Berzaghi, S. Segato, E. Novelli and S. Balzan (2012). Near-infrared spectroscopy to assist authentication and labeling of Asiago d'allevo cheese. *J. Food. Eng.*, **113**, 289-298.
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41. Facco, P., E. Tomba, F. Bezzo, S. García-Muñoz and M. Barolo (2012). Transfer of process monitoring models between different plants using latent variable techniques. *Ind. Eng. Chem. Res.*, **51**, 7327-7339.
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45. Ottavian, M., M. Barolo, H. Zisser, E. Dassau and D. E. Seborg (2011). Improved blood glucose control for critically ill subjects. *J. Process Control*, **21**, 331-342.
46. Galvanin, F., M. Barolo, S. Macchietto and F. Bezzo (2011). Optimal design of clinical tests for the identification of physiological models of type 1 diabetes in the presence of model mismatch. *Med. Biol. Eng. Comput.*, **49**, 263-277.
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#### Papers in peer-reviewed Proceedings

1. De Luca, R., G. Bano, E. Tomba, F. Bezzo and M. Barolo (2019). Model-based design of experiments to enable fast product transfer across freeze-drying units. *Proc. EuroDrying2019 – 7th European Drying Conference, 10-12 July 2019, Torino (Italy)*, 235-239.
2. Bano, G., P. Facco, M. Ierapetritou, F. Bezzo and M. Barolo (2019). Real-time design space description in pharmaceutical manufacturing. In: *Computer-Aided Chemical Engineering 46, Proc. of the 29th European Symposium on Computer Aided Process Engineering* (A.A. Kiss, E. Zondervan, R. Lakerveld, and L. Özkan, Eds.), Elsevier, Amsterdam (The Netherlands), 661-666.
3. Bano, G., Z. Wang, P. Facco, F. Bezzo, M. Barolo and M. Ierapetritou (2018). Dimensionality reduction in feasibility analysis by latent variable modeling. In: *Computer-Aided Chemical Engineering 44, Proc. of the 13th International Symposium on Process Systems Engineering – PSE 2018* (M.R. Eden, M.G. Ierapetritou, and G.P. Towler, Eds.), Elsevier, Amsterdam (The Netherlands), 1477-1482.
4. Castaldello, C., A. Gubert, F. Galvanin, A. Casonato, R. Padrini, M. Barolo and F. Bezzo (2017). A model-based support for diagnosing von Willebrand disease. In: *Computer-Aided Chemical Engineering 40, Proc. of the 27th European Symposium on Computer Aided Process Engineering* (A. Espuña, M. Graells, and L. Puigjaner, Eds.), Elsevier, Amsterdam (The Netherlands), 2779-2884.
5. Ferrari, M., L. Bosa, R. De-Luca, M. Barolo, C. F. Zambon, V. Pengo, R. Padrini and F. Bezzo (2016). A pharmacokinetic-pharmacodynamic model for individualisation of an oral anticoagulation therapy. In: *Computer-Aided Chemical Engineering 38, 26<sup>th</sup> European Symposium on Computer Aided Process Engineering* (Z. Kravanja and M. Bogataj, Eds.), Elsevier, Amsterdam (The Netherlands), p.2313-2318.
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7. Meneghetti, N., P. Facco, F. Bezzo, C. Himawan, S. Zomer and M. Barolo (2016). Automated data review in secondary pharmaceutical manufacturing by pattern recognition techniques. In: *Computer-Aided Chemical Engineering 38, 26<sup>th</sup> European Symposium on Computer Aided Process Engineering* (Z. Kravanja and M. Bogataj, Eds.), Elsevier, Amsterdam (The Netherlands), p.799-804.
8. Depalo, A., M. Barolo, F. Bezzo and R. Muradore (2015). Phase identification for product quality prediction in batch processes: application to industrial resin production. *Proc. European Control Conf. ECC 2015*, Linz (Austria), July 15-17, p.3501-3506.
9. Dal-Pastro, F., P. Facco, F. Bezzo, H. Thomas, E. Zamprogna and M. Barolo (2015). Data-based multivariate modeling of a grain comminution process. In: *Computer-Aided Chemical Engineering 37, 12<sup>th</sup> International Symposium on Process Systems Engineering and 25<sup>th</sup> European Symposium on Computer Aided Process Engineering* (K.V. Gernaey, J.K. Huusom, R. Gani, Eds.), Elsevier, Amsterdam (The Netherlands), 2219-2224.
10. Meneghetti, N., P. Facco, S. Bermingham, D. Slade, F. Bezzo and M. Barolo (2015). First-principles model diagnosis in batch systems by multivariate statistical modeling. In: *Computer-Aided Chemical Engineering 37, 12<sup>th</sup> International Symposium on Process Systems Engineering and 25<sup>th</sup> European Symposium on*

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11. Galvanin, F., A. Monte, A. Casonato, R. Padrini, M. Barolo and F. Bezzo (2014). Towards model-based diagnosis of von Willebrand disease. In: *Computer-Aided Chemical Engineering 33, 24<sup>th</sup> European Symposium on Computer-Aided Process Engineering* (J.J. Klemeš, P.S. Varbanov, P.Y. Liew, Eds.), Elsevier, Amsterdam (The Netherlands), 583-588.
12. Meneghetti, N., P. Facco, F. Bezzo and M. Barolo (2014). Diagnosing process/model mismatch in first-principles models by latent variable modeling. In: *Computer-Aided Chemical Engineering 33, 24<sup>th</sup> European Symposium on Computer-Aided Process Engineering* (J.J. Klemeš, P.S. Varbanov, P.Y. Liew, Eds.), Elsevier, Amsterdam (The Netherlands), 1897-1902.
13. Ottavian, M. M. Barolo and S. García-Muñoz (2013). Multivariate image and texture analysis for film-coated tablets elegance assessment. *Proc. DYCOPS 2013 – 10<sup>th</sup> International Symposium on Dynamics and Control of Process Systems* (M. Henson and G. Pannocchia, Eds.), Mumbai (India), December 18-20, p.331-336.
14. Meneghetti, N., E. Tomba, P. Facco, F. Lince, D. L. Marchisio, A. A. Barresi, F. Bezzo and M. Barolo (2013). Supporting the transfer of products between different equipment through latent variable model inversion. In: *Computer-Aided Chemical Engineering 32, 23<sup>rd</sup> European Symposium on Computer-Aided Process Engineering* (I.A. Kraslawski and I. Turunen, Eds.), Elsevier, Amsterdam (The Netherlands), p. 511-516.
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16. Ballan, C.C., F. Galvanin, M. Barolo and F. Bezzo (2012). Parallel design of pharmacodynamic experiments for the identification of antimicrobial-resistant bacterial populations models. In: *Computer-Aided Chemical Engineering 31, 11<sup>th</sup> International Symposium on Process Systems Engineering* (I.A. Karimi and R. Srinivasan, Eds.), Elsevier, Amsterdam (The Netherlands), p.1125-1129.
17. Tomba, E., S. García-Muñoz, P. Facco, F. Bezzo and M. Barolo (2012). A general framework for latent variable model inversion to support product and process design. In: *Computer-Aided Chemical Engineering 30, 22<sup>nd</sup> European Symposium on Computer Aided Process Engineering* (I.D.L. Bogle and M. Fairweather, Eds.), Elsevier, Amsterdam (The Netherlands), p.512-516.
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19. Galvanin, F., M. Barolo and F. Bezzo (2011). Online redesign of clinical tests for the identification of type 1 diabetes models in the presence of continuous glucose monitoring systems. *18<sup>th</sup> IFAC World Congress* (S. Bittanti, A. Cenedese and S. Zampieri, Eds.), Milano (Italy), August 28-September 2, p.8328-8333.
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