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1. International scientific articles

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2. Book

Singh, R., Yuan, Z. (2018). Process Systems Engineering for Pharmaceutical Manufacturing. Volume 41, 1st Edition. Publisher: Elsevier. ISBN: 978-0-444-63963-9.

3. Book Chapters

1. **Singh, R.**, Figueroa, CV, Sahay, A., Karry, KM, Fernando Muzzio, F., Ierapetritou, M., Ramachandran, R. (2014). Chapter 7: **Advanced Control of continuous pharmaceutical tablet manufacturing processes**. Book title: Process Simulation and Data Modeling in Solid Oral Drug Development and Manufacture. Publisher: Humana Press, ISBN: 978-1-4939-2995-5, 191 – 223.
2. **A Book chapter in “Product and Process Modelling: A case study approach”:**
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 - **Singh, R. (2011). Pharmaceutical tablet pressing process model.** Chapter 12.6 of book “Product and Process Modelling: A case study approach” edited by I Cameron & R. Gani. Publisher: Elsevier, pp 422-430.
 - **Singh, R. (2011). Milk pasteurization process modeling.** Chapter 12.3 of book “Product and Process Modelling: A case study approach” edited by I Cameron & R. Gani. Publisher: Elsevier, pp 396-406.
3. Ierapetritou, M., Escotet-Espinoza, M. S., **Singh, R. (2017). Process Simulation and control for continuous pharmaceutical manufacturing of solid drug products.** Chapter 2 of book “Continuous manufacturing of pharmaceuticals” edited by Peter Kleinebudde, Johannes Khinast and Jukka Rantanen. Publisher: Wiley-VCH, pp 33-106.
4. Oka, S, Escotet-Espinoza, M. S., **Singh, R.**, Scicolone, J., Hausner, D., Ierapetritou, M., Muzzio, F. (2017). **Design of an integrated continuous manufacturing system.** Chapter 12 of book “Continuous manufacturing of pharmaceuticals” edited by Peter Kleinebudde, Johannes Khinast and Jukka Rantanen. Publisher: Wiley-VCH, pp 405-446.
5. Sen, M., **Singh, R.**, Ramachandran, R. (2018). Chapter 11: Process dynamics, and control of API manufacturing and purification processes. Book title: Process Systems Engineering for Pharmaceutical Manufacturing. Publisher: Elsevier, ISBN: 978-0-444-63963-9. Computer Aided Chemical Engineering, Volume 41, pp 261-292.

6. Ospino, D., Cárdenas, V., Ortega-Zuñiga, C., **Singh, R. (2018)**. Chapter 12: PAT for pharmaceutical manufacturing process involving solid dosages forms. Book title: Process Systems Engineering for Pharmaceutical Manufacturing. Publisher: Elsevier, ISBN: 978-0-444-63963-9. Computer Aided Chemical Engineering, Volume 41, pp 293-315.
7. **Singh, R. (2018)**. Chapter 13: Model-based control system design and evaluation for continuous tablet manufacturing processes (via direct compaction, via roller compaction, via wet granulation). Book title: Process Systems Engineering for Pharmaceutical Manufacturing. Elsevier, ISBN: 978-0-444-63963-9. Computer Aided Chemical Engineering, Volume 41, pp 317-351.
8. **Singh, R. (2018)**. Chapter 17: Automation of continuous pharmaceutical manufacturing process. Book title: Process Systems Engineering for Pharmaceutical Manufacturing. Publisher: Elsevier, ISBN: 978-0-444-63963-9. Computer Aided Chemical Engineering, Volume 41, pp 431-446.
9. **Singh, R. (2018)**. Chapter 18: Implementation of control system into continuous pharmaceutical manufacturing pilot-plant (powder to tablet). Book title: Process Systems Engineering for Pharmaceutical Manufacturing. Publisher: Elsevier, ISBN: 978-0-444-63963-9. Computer Aided Chemical Engineering, Volume 41, pp 447-469.
10. Oka, S, Escotet-Espinoza, M. S., **Singh, R.**, Scicolone, J., Hausner, D., Ierapetritou, M., Muzzio, F. **(2018)**. Diseño de Sistemas Integrados de Manufacturación Continua. Publisher: Eudeba.
11. **Singh, R.**, Muzzio, F. **(2022)**. Chapter 14: Integrated process control. Book title: How to Design and Implement Powder-to-Tablet Continuous Manufacturing Systems. Editor: Fernando J. Muzzio. Publisher: Elsevier. ISBN: 9780128134795. PP 251-269. <https://doi.org/10.1016/B978-0-12-813479-5.00011-2>
12. Razavi, S. M., Yohannes, B., **Singh, R.**, Gonzalez, M., Lee, H. P., Cuitiño, A. M. **(2022)**. Continuous tableting. Book title: How to Design and Implement Powder-to-Tablet Continuous Manufacturing Systems. Editor: Fernando J. Muzzio. Publisher: Elsevier. ISBN: 9780128134795. PP 159-177. <https://doi.org/10.1016/B978-0-12-813479-5.00009-4>

4. International conferences

A. Plenary lectures/invited keynote lectures in international conferences

9. **Singh, R. (2024)**. Digital twin model: A faster and economical way to modernize the generic drug product manufacturing. Generic drug science and research initiative public workshop. Invited talk by US Food and Drug Administration (FDA).
10. **Singh, R. (2024)**. Technological Breakthroughs for Process Modelling, Real-time Monitoring & Control in Small Molecule Drug Product Manufacturing. Invited seminar. Commercializing continuous processing in pharma (CCP), Boston, MA, USA, 26-28 March .
8. **Singh, R. (2021)**. Industry 4.0: Continuous Pharmaceutical Manufacturing Process. Keynote presentation at AIChE, Hybrid: Boston (Nov. 7-11) and Virtual (Nov. 15-19).
7. **Singh, R. (2015)**. Flowsheet Modeling and Analysis of Continuous Tablet Manufacturing Processes. American Association of Pharmaceutical Scientists (AAPS), Bristol-Myers Squibb, Plainsboro, NJ, USA, 1st June.
6. **Singh, R.**, Muzzio, F., Ierapetritou, M., Ramachandran, R **(2014)**. A novel continuous pharmaceutical manufacturing process integrated with inline PAT tools and advanced feedback control system. **ISPE annual meeting**, Las Vegas, Nevada USA, 12-15 October.
5. Muzzio, F., Ierapetritou, M., Ramachandran, R., Roger, A., and **Singh, R. (2014)**. Achieving Excellence in Continuous Manufacturing. **IFPAC-Cortona14, Italy**, 28 September –1 October.
4. Gani, R., Gernaey, K. V., **Singh, R. (2008)**. A model-based framework for design and analysis of PAT systems. Plenary lecture at EUROPACT, Frankfurt, Germany, 22 – 25 April.
3. Gernaey, K. V., **Singh, R.**, Gani, R. **(2009)**. A systematic computer aided framework for design and analysis of PAT systems. Plenary lecture at 8th Word Congress of Chemical Engineering, Montreal, Quebec, **Canada**, 23 – 27 August.

2. **Singh, R.**, Gernaey, K. V., Woodley, J. M., Gani, R. (2010). Mechanistic modeling for systematic design and analysis of PAT systems. Invited presentation at **IFPAC 2010**, Baltimore, MD, USA, 31 January- 4 February.
1. **Singh, R. (2010)**. Model-based computer-aided framework for design of process monitoring and analysis systems (PAT systems). Invited presentation, on the ceremony of EFCE Excellence Award for the Outstanding PhD Thesis in CAPE area, from European Federation of Chemical Engineering, **ESCAPE 20**, Ischia, Naples, Italy, 6 – 9 June.

B. International conference presentations

Year 2025

151. **Singh, R.**, Muzzio, F. (2025). Pharma 5.0: Integrated Toolbox and Artificial Intelligence (AI) for Digitalization of Advanced Continuous Pharmaceutical Manufacturing. Oral presentation at AIChE, Boston, USA, November 2-6.
150. **Singh, R.**, Muzzio, F. (2025). A Novel Digital Twin and Its Applications for the Control of Advanced Continuous Pharmaceutical Injectable Manufacturing Process. Oral presentation at AIChE, Boston, USA, November 2-6.
149. **Singh, R.**, Muzzio, F. (2025). A Novel Digital Toolbox for Modelling, Optimization, and Control of Advanced Continuous Manufacturing of Drug Substance. Oral presentation at AIChE, Boston, USA, November 2-6.
148. Das, P., Anderson, B., **Singh, R.**, Muzzio, F., and Takhistov, P. (2025). Cavitation-Driven Deagglomeration of Highly Concentrated Ibuprofen Slurries By High-Intensity Ultrasound: Experiment and Modeling. Oral presentation at AIChE, Boston, USA, November 2-6.
147. Das, P., Khakbiz, M., Ortega-Zuniga, C., **Singh, R.**, Tsilomelekis, G., Paul Takhistov, P., Gerardo Callegari, G., Muzzio, F. (2025). Developing an Agile System for Continuous GMP Manufacturing of Liquid (Injectable and Inhalable) Products. Oral presentation at AIChE, Boston, USA, November 2-6.

Year 2024

146. **Singh, R. (2024)**. Digital toolbox for advanced continuous pharmaceutical manufacturing. Symposium oral presentation. American Association of Pharmaceutical Scientist (AAPS). Salt Lake City, UT, 20-23 October.
145. **Singh, R. (2024)**. A Modular Continuous Pharmaceutical Injectable Manufacturing Pilot-Plant and a Novel Digital Twin. Oral presentation at AIChE, San Diego, USA, October 27-31, 2024.
144. **Singh, R. (2024)**. Advanced Modular Continuous Manufacturing of Drug Substance: A Novel Digital Twin and Its Applications for Dynamic Optimization, and Control. Oral presentation at AIChE, San Diego, USA, October 27-31, 2024.
143. **Singh, R. (2024)**: Industry 4.0: Artificial Intelligence (AI) and Digital Transformation of Advanced Continuous Pharmaceutical Manufacturing. Oral presentation at AIChE, San Diego, USA, October 27-31, 2024.
142. **Konkol, J.**, Singh, R., Muzzio, F., Tsilomelekis, G. (2024). Kinetics, Solvent Effects, and at-Line Monitoring of Diphenhydramine Synthesis. Poster presentation, San Diego, USA, October 27-31, 2024.
141. **Singh, R. (2024)**. Continuous pharmaceutical manufacturing of liquid dosage forms: an advanced modular pilot-plant and digital twin. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 3-6 March.
140. **Singh, R. (2024)**. Continuous manufacturing of drug substance: a novel digital twin and its applications for dynamic optimization, and control. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 3-6 March.
139. **Singh, R. (2024)**. Industry 4.0: Digital transformation of advanced continuous pharmaceutical manufacturing. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 3-6 March.

138. Ortega-Zuniga, C., Roman-Ospino, A., Omar, T., ..., **Singh, R.** Muzzio, F. (2024). State-of-the-Art Process Analytical Technology: Advance Sensing for Real-Time Monitoring of Small Analyte Changes in Pharmaceutical Manufacturing. Poster presentation at IFPAC, Maryland (Washington D.C.), USA, 3-6 March.

Year 2023

137. Khakbiz, M., R., Ortega-Zuniga, C., Scicolone, J., Razavi, S. M., **Singh, R.**, Callegari, G., Muzzio, F. (2023). Machine learning approach for prediction of NIR spectra and residence time distributions curves in pharmaceutical continuous manufacturing. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 4-7 June.
136. **Singh, R.**, Muzzio, F. (2023). A novel modular plant and digital twin model of continuous pharmaceutical manufacturing of liquid dosage forms. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
135. **Singh, R.** (2023). A novel digital twin of continuous API manufacturing process and its applications for scenario analysis, digital optimization, and control. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
134. **Singh, R.**, Muzzio, F. (2023). An novel digital RTD toolbox for adaptive modelling, quality control, and material traceability of continuous pharmaceutical manufacturing process. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
133. **Singh, R.** (2023). Industry 4.0: Digital transformation of advanced continuous pharmaceutical manufacturing. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
132. Anderson, B., Muzzio, F., **Singh, R.** (2023). Investigating the effects of coil diameters on the heating efficiency of a twisted-helix preheater for continuous API Synthesis through CFD Modeling. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
131. Anderson, B., Muzzio, F., **Singh, R.** (2023). Screening of parameters influencing performance of tangential/crossflow filtration systems in continuous API manufacturing processes with a mechanistic CFD model. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
130. Kritikos, A., Tsilomelekis, G., Muzzio, F., **Singh, R.**, (2023). CFD-Based Evaluation of Mixing Efficiency and Flow Uniformity in an SMX Static Mixer. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
129. Kritikos, A., **Singh, R.**, Muzzio, F., Tsilomelekis, G. (2023). Optimizing Reverse Phase Chromatography Separation in Molnupiravir Synthesis: An Inverse Method Approach. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
128. Konkol, J., **Singh, R.**, Muzzio, F., Tsilomelekis, G. (2023). At-line monitoring of diphenhydramine synthesis via low-field NMR spectroscopy as process analytical technology. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
127. Das, P., Muzzio, F., **Singh, R.** (2023). A digital twin model of homogenizer used in continuous injectables manufacturing. Oral presentation at AIChE, Orlando, FL, USA, November 5-10, 2023.
126. **Singh, R.**, Muzzio, F. (2023). RTD toolbox for adaptive modelling, quality control, and material traceability. Oral presentation at AAPS conference, Orlando, USA, 22-25 October.
125. **Singh, R.** (2023). A novel digital twin of end-to-end continuous manufacturing of injectable. Oral presentation at AAPS conference, Orlando, USA, 22-25 October.
124. **Singh, R.** (2023). Pharma 4.0: Digital manufacturing of advanced continuous pharmaceutical tablet manufacturing. Oral presentation at AAPS conference, Orlando, USA, 22-25 October.
123. **Singh, R.** (2023). Industry 4.0: Digital technology for advanced continuous pharmaceutical manufacturing. Oral presentation at International System Dynamics Conference, Chicago, USA, 23-27 July.
122. **Singh, R.**, Muzzio, F. (2023). A novel flowsheet model of continuous API manufacturing process and its applications for dynamic optimization and control. Oral presentation at International System Dynamics Conference, Chicago, USA, 23-27 July.
121. **Singh, R.**, Muzzio, F. (2023). A novel RTD toolbox for adaptive modelling, quality control, and material traceability of continuous pharmaceutical manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 4-7 June.

120. **Singh, R., Muzzio, F. (2023).** A novel digital twin model of continuous pharmaceutical manufacturing of liquid dosage forms. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 4-7 June.
119. **Singh, R. (2023).** Industry 4.0: Digital technology for advanced continuous pharmaceutical manufacturing. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 4-7 June.
138. Romanach, R., Ortega-Zuniga, **Singh, R., et. Al. (2023).** Variographic analysis of residence time distribution studies. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 4-7 June.
117. Konkol, J., **Singh, R., Muzzio, F., Tsilomelekis, G. (2023).** At-line monitoring of diphenhydramine synthesis via low-field nmr spectroscopy as process analytical technology. Québec City, Canada. June 11-14, 2023.
116. Kritikos, A., **Singh, R., Muzzio, F., Tsilomelekis, G. (2023).** Mixing and flow characterization in an smx static mixer. International symposia on chemical reaction engineering. Québec City, Canada. June 11-14, 2023.
115. Ortega-Zuniga, C., Scicolone, J., **Singh, R., and Muzzio, F. J. (2023).** A real-time quality control toolbox for predicting the dissolution profile of tablets from a continuous pharmaceutical manufacturing pilot-plant using a non-destructive NIR spectroscopy method. Poster presentation at International Consortium for Advanced Medicines Manufacturing (ICAMM), Boston, USA, 27-28 April, 2023.

Year 2022

114. **Singh, R., Muzzio, F. (2022).** A novel adaptive residence time distribution (RTD) modelling toolbox. Oral presentation at AIChE, Phoenix, AZ, USA, November 13-18, 2022.
113. **Singh, R., Muzzio, F. (2022).** Integrated flowsheet model of continuous API manufacturing process and its applications for dynamic optimization and control. Oral presentation at AIChE, Phoenix, AZ, USA, November 13-18, 2022.
112. **Singh, R. (2022).** Industry 4.0: Advanced continuous pharmaceutical tablet manufacturing process. Oral presentation at AIChE, Phoenix, AZ, USA, November 13-18, 2022.
111. **Singh, R., Muzzio, F. (2022).** A novel RTD toolbox for continuous pharmaceutical manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 12-15 June.
110. **Singh, R., Muzzio, F. (2022).** A digital twin of flexible modular continuous API manufacturing process and its applications for dynamic optimization and control. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 12-15 June.
109. **Singh, R. (2022).** Industry 4.0: Advanced continuous pharmaceutical tablet manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 12-15 June.

Year 2021

108. **Singh, R., Muzzio, F. (2021).** RTD Based Digital Twin of Continuous Pharmaceutical Manufacturing Process. Oral presentation at AIChE, Boston, USA, November 7-11, 2021.
107. **Singh, R., Lim, J., Collins, N., Muzzio, F. (2021).** A Digital Twin of Flexible Modular Continuous API Manufacturing Process. Oral presentation at AIChE, Oral presentation at AIChE, Boston, USA, November 7-11, 2021.
106. **Singh, R. (2021).** Applications of industry 4.0 concepts in continuous pharmaceutical tablet manufacturing process. Invited webinar at BioPharma Asia, Virtual presentation, 3rd November 2021.
105. **Singh, R., Lim, J., Collins, N., Muzzio, F. (2021).** A digital twin for API manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.
104. **Lim, J., Collins, N., Singh, R., Muzzio, F. (2021).** A novel continuous API manufacturing process for emergency pandemic response. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.
103. **Singh, R., Riveron, A. (2021).** Applications of industry 4.0 concepts in continuous pharmaceutical tablet manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.

102. **Singh, R. (2021).** Industry 4.0: Continuous pharmaceutical manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.
101. Roman-Ospino, A., **Singh, R.**, et al. **(2021).** Sampling Optimization for Blend Monitoring of a Low Dose Formulation in a Tablet Press Feed Frame Using Spatially Resolved Near-Infrared Spectroscopy. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.
100. Gupta, S., Roman-Ospino, A., Singh, R., Hausner, D., Muzzio, F. **(2021).** Development of an In-line Near Infrared Spectroscopy-based Methodology to Determine the Blend Composition Distributions in Partially Agglomerated Low Dose Blends. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 28 February -5 March.

Year 2020

99. **Singh, R.**, Ramachandran, R., Muzzio, F. J. **(2020).** Pharma 4.0: Advanced control and cyber-physical security of continuous pharmaceutical manufacturing pilot-plant. Oral presentation at AIChE, San Francisco, CA, USA, November 15-10, 2020.
98. **Singh, R.**, Muzzio, F. J. **(2020).** Dynamic optimization of feeder refill strategy used in continuous pharmaceutical manufacturing process. Oral presentation at AIChE, San Francisco, CA, USA, November 15-10, 2020.
97. **Singh, R.**, Muzzio, F. J. **(2020).** Pharma 4.0: Advanced control and cyber-physical security of CPM pilot-plant. Oral presentation at Emerson Global Users Exchange Americas conference. Washington, DC, USA, Sept 27 –October 1, 2020.
96. **Singh, R.**, Muzzio, F. J. **(2020).** Modelling and optimization of continuous pharmaceutical manufacturing process. Oral presentation at Emerson Global Users Exchange Americas conference. Washington, DC, USA, Sept 27 –October 1, 2020.
95. **Singh, R. (2020).** Cyber security of pharmaceutical manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 23 - 26 February.

Year 2019

94. **Singh, R.**, Ramachandran, R., Ierapetritou, M., Muzzio, F. J. **(2019).** Industry 4.0: Advanced Bi-layer Control System for Continuous Pharmaceutical Manufacturing Pilot-plant. Oral presentation at AIChE, Orlando, FL, USA, November 10-15, 2019.
93. **Singh, R. (2019).** Cyber-Physical Security of Advanced Automated Continuous Pharmaceutical Manufacturing Pilot-Plant. Oral presentation at AIChE, Orlando, FL, USA, November 10-15, 2019.
92. **Singh, R. (2019).** Process Systems Engineering (PSE). Poster presentation at AIChE, Orlando, FL, USA, November 10-15, 2019.
91. **Singh, R. (2019).** Advanced Process Control System for Continuous Pharmaceutical Manufacturing. Oral presentation at Emerson Global Users Exchange Americas conference. Nashville, TN, USA, Sept 23 -27, 2019.
90. **Singh, R.**, Muzzio, F. J. **(2019).** Implementation of Advanced Process Control System into Continuous Pharmaceutical Manufacturing Pilot-Plant. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 3 - 6 March.

Year 2018

89. **Singh, R.**, Muzzio, F. J. **(2018).** RTD Based Control System for Continuous Pharmaceutical Manufacturing Process. Oral presentation at AIChE, Pittsburgh, USA, 28 October - 2 November, 2018.
88. **Singh, R. (2018).** Implementation of Advanced Process Control System into Continuous Pharmaceutical Manufacturing Pilot-Plant. Oral presentation at AIChE, Pittsburgh, USA, 28 October - 2 November, 2018.

87. **Singh, R. (2018).** Process System Engineering (PSE): Continuous Pharmaceutical and Bio-pharmaceutical Manufacturing. Poster presentation at AIChE, Pittsburgh, USA, 28 October - 2 November, 2018.
86. **Singh, R., Muzzio, F. J. (2018).** Advanced model predictive control of continuous pharmaceutical manufacturing process. Oral presentation at IFPAC, Maryland (Washington D.C.), USA, 11 - 14 February.

Year 2017

85. **Singh, R., Muzzio, F. J, Ierapetritou, M., Ramachandran, R. (2017).** Advanced model predictive control of powder level in continuous pharmaceutical manufacturing pilot-plant. Oral presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
84. **Singh, R., Muzzio, F. J, Ierapetritou, M., Ramachandran, R. (2017).** Integrated control and data management system for continuous pharmaceutical manufacturing process. Oral presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
83. **Singh, R. (2017).** Pharmaceutical system engineering. Poster presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
82. Shah, A., Ramachandran, R., **Singh, R. (2017).** Moving horizon based real time optimization and hybrid control of continuous pharmaceutical manufacturing process. Oral presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
81. Maeda, J., Escotet-Espinoza, MS, **Singh, R., Ierapetritou, M. (2017).** Real-time monitoring and control of API concentration in a tablet press for continuous manufacturing of tablets. Oral presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
80. Román-Ospino, A. D., Oka, S., Mogthadernejad, S., Escotet-Espinoza, M. S., **Singh, R., Ramachandran, R., Ierapetritou, M., Muzzio, F. J. (2017).** Residence time distribution and segregation studies through real time measurements by near infrared spectroscopy. Oral presentation at AIChE annual meeting, Minneapolis, MN, USA, 29 October – 3 November.
79. Barros, F. N., Bhaskar, A., **Singh, R. (2017).** A validated model for design and evaluation of advanced control systems for continuous tablet manufacturing processes. Poster presentation at NIPTE Conference, USP, Maryland, USA, 14-15 September.
78. Bhaskar, A., Barros, F. N., **Singh, R. (2017).** Development and implementation of an advanced model predictive control system into continuous pharmaceutical tablet compaction process. . Poster presentation at NIPTE Conference, USP, Maryland, USA, 14-15 September.
77. Wang, Z., Escotet-Espinoza, M. S., **Singh, R., Ierapetritou, M. G. (2017).** Surrogate-Based Optimization for Pharmaceutical Manufacturing Processes. Oral presentation at ESCAPE27, Barcelona, Spain, 1 – 5 October.
76. Haas, N. T., **Singh, R., Ierapetritou, M. G. (2017).** Advanced Model Predictive Feedforward/Feedback Control of a Tablet Press. Oral presentation at AIChE Mid Atlantic conference, Rowan University, Glassboro, NJ, USA, 24 – 25 March. Paper award winner (2nd place).

Year 2016

75. **Singh, R. (2016).** Process system engineering for advanced modular continuous pharmaceutical manufacturing platform. Poster presentation at meet the faculty candidate session, AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.
74. **Singh, R., Muzzio, F. J, Ramachandran, R. Ierapetritou, M. (2016).** Advanced flexible control system implementation into direct compaction continuous pharmaceutical manufacturing pilot-plant. Oral presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.
73. **Singh, R., Cao, H., Mushnoori, S., Higgins, B., Kolipara, C., Fermier, A., Hausner, D., Jha, S., Ierapetritou, M., Ramachandran, R. (2016).** Data management and integration for continuous pharmaceutical manufacturing. Oral presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.
72. **Singh, R., Pereira, G. C., Soni, N., Román-Ospino, A. D., Ierapetritou, M., Ramachandran, R. (2016).** Feedforward control of continuous pharmaceutical manufacturing process. Oral presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.

71. Wang, Z., Escotet-Espinoza, M. S., **Singh, R.**, Muzzio, F. J., Ierapetritou, M. G. (2016). Feasibility Analysis of Flowsheet Models in Continuous Pharmaceutical Manufacturing Processes Considering the Effects of Noise. Poster presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.
70. Wang, Z., Escotet-Espinoza, M. S., **Singh, R.**, Muzzio, F. J., Ierapetritou, M. G. (2016). Surrogate-Based Optimization Methodology for Pharmaceutical Tablet Manufacturing Processes. Oral presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November.
69. Haas, N. T., **Singh, R.**, Ierapetritou, M. G. (2016). Advanced Model Predictive Feedforward/Feedback Control of a Tablet Press. Poster presentation at AIChE annual meeting, San Francisco, CA, USA, 13 – 18 November. Poster award winner (3rd place).
68. Pereira, G., Román, A., Clancy, D., Igne, B., Airiau, C., Ierapetritou, Ramachnadran, R., **Singh, R.** (2016). Combined Feed-forward/Feed-back Control of an Integrated Continuous Granulation Process. Poster presentation at NIPTE Conference, FDA White Oaks Campus, Silver Spring, MD, USA, 3-4 October.
67. **Singh, R.**, Muzzio, F., Ierapetritou, M., Ramachandran, R. (2016). Combined feedforward/feedback control and automation of direct compaction continuous pharmaceutical tablet manufacturing plant. Oral presentation at IFPAC 2016, Arlington, VA (Washington DC), USA, 24 - 27 January.
66. Maeda, J., **Singh, R.**, Ierapetritou, M. (2016). Real-time monitoring and control of API concentration in a tablet press for continuous manufacturing of tablets. Oral presentation at IFPAC 2016, Arlington, VA (Washington DC), USA, 24 - 27 January.
65. Román-Ospino, A. D., **Singh, R.**, Ierapetritou, M., Ramachandran, R., Ortega, C., Méndez, R., Rodolfo J. Romañach, R. J. (2016). Development of Calibration Models for Real Time Prediction of Powder Density by Near Infrared Spectroscopy. Oral presentation at IFPAC 2016, Arlington, VA (Washington DC), USA, 24 - 27 January.
64. Engel, B., **Singh, R.** (2016). Automated Batch Reporting for Continous Manufacturing: data management, batch reporting, analytics and traceability. Oral presentation at IFPAC 2016, Arlington, VA (Washington DC), USA, 24 - 27 January.
63. **Singh, R.**, Muzzio, F., Ierapetritou, M., Ramachandran, R. (2016). Systematic framework for design and implementation of plant-wide multilayer, sensing and control architecture into continuous pharmaceutical manufacturing plant. Poster presentation at ESCAPE 26, Portorož **Slovenia**, 12 June - 15 June.

Year 2015

62. **Singh, R.**, Muzzio, F. J., Ierapetritou, M., Ramachandran, R. (2015). Implementation of Advanced Multilayer Plant-Wide Control Architecture into a Direct Compaction Continuous Pharmaceutical Manufacturing Process. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
61. **Singh, R.**, Escotet-Espinoza, M. S., Vadodaria, S., Zhang, J., Muzzio, F. J., Ramachandran, R., Ierapetritou, M. (2015). Dynamic Modeling and Advanced Control of Tablet Press. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
60. **Singh, R.**, Cherian, C. S., Ramachandran, R. (2015). Sensor modeling. Poster presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
59. **Singh, R.**, (2015). Applied Pharmaceutical Process System Engineering. Poster presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
58. Shah, A., Ramachandran, R. **Singh, R.** (2015). Moving Horizon Based Real Time Optimization and Advanced Hybrid Model Predictive Control of Continuous Pharmaceutical Manufacturing Process. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
57. Engel, B., Brodbeck, P., **Singh, R.** (2015). Applying Batch Data Principles to Continuous Manufacturing for the Purposes of Data Management, Batch Reporting, Analytics and Traceability. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
56. Escotet-Espinoza, M. S., Jayjock, E., **Singh, R.**, Vanarase, A., Muzzio, F. J., Ierapetritou, M. (2015). Characterization and Modeling of Feeders: A Critical Component in Continuous Pharmaceutical Manufacturing. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.

55. Zhang, J., Pereira, F., **Singh, R.**, Bermingham, S., Ramachandran, R., Muzzio, F. J., Ierapetritou, M. (2015). A Systematic Approach of Using Material Properties Data for Pharmaceutical Process Simulation. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
54. Wang, Z., Escotet-Espinoza, M. S., **Singh, R.**, Muzzio, F. J., Ierapetritou, M. (2015). Flowsheet Modeling for Oral Solid Drug Product Manufacturing. Oral presentation at AIChE annual meeting, Salt Lake City, UT, USA, 8 – 19 November.
53. **Singh, R.**, Ierapetritou, M., Ramachandran, R. (2015). A Novel Continuous Pharmaceutical Tablet Manufacturing Process Integrated with Inline PAT Tools and an Automated Control System. Oral presentation at IFPAC-QbD Summit, Carolina, Puerto Rico, USA, 9 – 10 June.
52. **Singh, R.**, Muzzio, F., Ierapetritou, M., Ramachandran, R. (2015). Plant-wide control of a continuous tablet manufacturing for Quality-by-Design based pharmaceutical manufacturing. Oral presentation at PSE 2015/ESCAPE 25, Copenhagen, **Denmark**, 31 May - 4 June.
51. **Singh, R.**, Sahay, A., Ierapetritou, M., Ramachandran, R., Muzzio, F. J. (2015). Advanced Feed-forward/feed-back Control of Continuous Pharmaceutical Tablet Manufacturing Process. Oral presentation at IFPAC 2015, Arlington, VA (Washington DC), USA, 25 - 28 January.
50. Sahay, A., **Singh, R.**, Ospino, A. R., Romanach, R. J., Ierapetritou, M., Ramachandran, R., Muzzio, F. J. (2015). An In-Line Method for Continuously Monitoring of Powder Density. Oral presentation at IFPAC 2015, Arlington, VA (Washington DC), **USA**, 25 - 28 January.
49. Ierapetritou, M., Escotet, S., Singh, R., Zhang, J. (2015). Taking Continuous Processing from Good to Great: The Application of Advanced Process Controls and Real-Time Analytics. Oral presentation at 50th AAPS Arden Conference, Baltimore, **USA**, 16 – 18 March.

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48. **Singh, R.**, Sahay, A., Muzzio, F., Ierapetritou, M., Ramachandran, R. (2014). Plant-wide advanced hybrid model predictive closed-loop control of continuous pharmaceutical tablet manufacturing pilot-plant for QbD based manufacturing. Oral presentation at AIChE annual meeting (739c), Atlanta, GA, **USA**, 16 - 21 November. <https://aiche.confex.com/aiche/2014/webprogram/Paper369535.html>
47. **Singh, R.**, Sen, M., Muzzio, F., Ierapetritou, M., Ramachandran, R. (2014). Integrated dynamic real time optimization and advanced hybrid MPC-PID control of direct compaction continuous tablet manufacturing process. Oral presentation at AIChE annual meeting (668e), Atlanta, GA, **USA**, 16 - 21 November. <https://aiche.confex.com/aiche/2014/webprogram/Paper369877.html>
46. **Singh, R.** (2014). Design, Optimization, Monitoring and Control of Continuous Pharmaceutical Manufacturing Plant for QbD and PAT Based Next Generation of Efficient Manufacturing. Poster presentation at AIChE annual meeting (6dp), Atlanta, GA, **USA**, 16 - 21 November, 2014. <https://aiche.confex.com/aiche/2014/webprogram/Paper373573.html>
45. Roman-Ospino, A., **Singh, R.**, Ramachandran, R., M., Sahay, A., Oka, S., Liu, X., Muzzio, F., Romanach, R. (2014). Real time prediction of powder density in a continuous manufacturing line. International Diffuse Reflectance Conference, Chambersburg, PA, **USA**, 2- 8 August.
44. **Singh, R.**, Sahay, A., Karry, K. M., Sen, M., Romañach, R. J., Muzzio, F. J., Ierapetritou, M., Ramachandran, R. (2014). Advanced hybrid MPC-PID based closed-loop control of continuous pharmaceutical tablet manufacturing pilot-plant. Oral presentation at IFPAC 2014, Arlington, VA (Washington DC), **USA**, 21 - 24 January.
43. **Singh, R.**, Roman, A., Krizia M. Karry, K., Sahay, A., Colón, Y.M., Ramachandran, R., Muzzio, F. J., Romañach, R. J. (2014). NIR in Continuous Mixing: Transitioning from Monitoring to Control. Oral presentation at IFPAC 2014 Arlington, VA (Washington DC), **USA**, 21 - 24 January.

Year 2013

42. **Singh, R.**, Sahay, A., Brodbeck, P., Ierapetritou, M., Ramachandran, R. (2013). Implementation of advanced hybrid MPC-PID control system into a continuous pharmaceutical tablet manufacturing pilot-plant. Oral

presentation at AIChE annual meeting (404e), San Francisco, CA, USA, 3 - 8 November. <https://aiche.confex.com/aiche/2013/webprogram/Paper321724.html>

41. **Singh, R.**, Sahay, A., Ierapetritou, M., Ramachandran, R. (2013). Design of an efficient control system for flexible continuous tablet manufacturing process. Poster presentation at AIChE annual meeting (586o), San Francisco, CA, USA, 3 - 8 November. <http://www3.aiche.org/proceedings/Abstract.aspx?PaperID=337206>
40. **Singh, R.**, Boukouvala, F., Jayjock, E., Ierapetritou, M., Muzzio, F., Ramachandran, R. (2013). Optimal operation and advanced control of a flexible multipurpose continuous pharmaceutical tablet manufacturing process. Oral presentation at IFPAC, Baltimore, MD, USA. 22 - 25 Jan.
39. Boukouvala, F., **Singh, R.**, Jayjock, E., Ierapetritou, M., Muzzio, F., Ramachandran, R. (2013). Flowsheet Modeling Methods for Design and Optimization of Continuous Powder Processes. Oral presentation at IFPAC, 2013 Baltimore, MD, USA, 22 - 25 January.
38. **Singh, R.**, Ierapetritou, M., Ramachandran, R. (2013). Hybrid advanced control of a flexible multipurpose continuous pharmaceutical tablet manufacturing process via direct compaction. Oral presentation at ESCAPE 23, Finland, 9 – 12 June.
37. Ramachandran, R., **Singh, R.**, Sahay, A., Ierapetritou, M., Muzzio F. (2013). Modeling and Control of a Continuous Direct Compaction Pharmaceutical Process. Oral presentation at Tenth Annual IFPAC/QbD/PAT Summit, Carolina, **Puerto Rico**, 18 – 19 June.
36. **Singh, R.**, Ierapetritou, M., Ramachandran, R. (2013). Hybrid advanced control of a flexible multipurpose continuous pharmaceutical tablet manufacturing process via direct compaction. Poster presentation at Advanced Process Modelling Forum (APM), New York, USA, 5 – 6 June.
35. Ramachandran, R., Sen, M., Barrasso, D., Chaudhury, A., **Singh, R.**, Oka, S. (2013). Population balance modeling of pharmaceutical processes featuring multi-scale approach of integrated flowsheet models and validation. Oral presentation at 5th International Conference on Population Balance Modeling, Bangalore, **India**, 11 – 13 September.
34. **Singh, R.**, Paul Brodbeck, Ramachandran, R. (2013). Advanced MPC based closed-loop control of a continuous pharmaceutical tablet manufacturing process using PAT on-line spectral analysis. Workshop at Emerson global user exchange, Grapevine, Texas, USA, 30 September– 4 October.
33. **Singh, R.**, Oka, S., Rogers, A., Ramachandran, R., Marianthi Ierapetritou, Fernando Muzzio, F. (2013). Development of infrastructure for predictive model control of continuous pharmaceutical manufacturing. Analytical Methods for Process and Product Quality, Virtual Meeting, Pharmaceutical Manufacturing, Putman Media, Inc., **USA**, 3rd October. <http://www.putmanmedia.com/our-brands/pharmaceutical-manufacturing/downloads-7>.
32. Sahay, A., Krizia Karry, K., Oka, S., **Singh, R.**, Roman, A., Colón, Y.M., Ramachandran, R., Muzzio, F. J., Románach, R. J. (2013). NIR in Continuous Mixing: Transitioning from Monitoring to Control. On-Demand: Analytical Methods for Small Molecule Pharmaceutical Product & Process Optimization, Virtual Meeting, Pharmaceutical Manufacturing, Putman Media, Inc., **USA**, 1st October. <http://www.putmanmedia.com/our-brands/pharmaceutical-manufacturing/downloads-7>.

Year 2012

31. **Singh, R.**, Ierapetritou, M., Ramachandran, R. (2012). Design and implementation of an efficient control system in a continuous pharmaceutical manufacturing process via roller compaction. Oral presentation at AIChE annual meeting, Pittsburgh, PA, **USA**, 28th October - 2nd November.
30. **Singh, R.**, Ierapetritou, M., Ramachandran, R. (2012). Plant-wide hybrid model predictive control of a continuous pharmaceutical tablet manufacturing process via direct compaction. Oral presentation at AIChE annual meeting, Pittsburgh, PA, **USA**, 28th October - 2nd November.
29. Sen, M., Chaudhury, A., John, J., **Singh, R.** (2012). Ramachandran, R. Multi Scale Flow sheet Model for Downstream Processes in Production of Active Pharmaceutical Ingredient. Oral presentation at AIChE annual meeting, Pittsburgh, PA, **USA**, 28th October - 2nd November

28. **Singh, R.**, Gernaey, K. V., Gani, R., Woodley, J. M. (2012). Adaptive continuous template based novel manufacturing technique for faster manufacturing of new APIs for clinical trials. Oral presentation at AIChE annual meeting, Pittsburgh, PA, USA, 28th October - 2nd November
27. **Singh, R.**, Raquel Rozada-Sanchez, R., Dean, W., Perkins, J., Muller, F., Godfrey, A., Gernaey, K. V., Gani, R., Woodley, J. M. (2012). A generic process template for continuous pharmaceutical production. 11th International Symposium on Process Systems Engineering conference (PSE2012), Singapore, 15-19 July.
26. **Singh, R.**, Chaudhury, A., Ramachandran, R., Ierapetritou, M. (2012). Model-based control of an integrated and continuous downstream pharmaceutical process. Oral presentation at IFPAC 2012, Baltimore, MD, USA, 22-25 January.

Year 2011

25. **Singh, R.**, Rozada-Sanchez, R., Wrate, T., Muller, F., Gernaey, K. V., Gani, R., Woodley, J. M. (2011). Substrates adoption methodology (SAM) to achieve “Fast, Flexible, Future (F³)” pharmaceutical production processes”. Oral presentation at ECCE8 conference, Session: F³ Factory (Designing reaction), P 36, Berlin, Germany, 25-29 September.
24. Haas-Santo, K., Vankayala, B., Dittmeyer, R., **Singh, R.**, Gernaey, K. V., Gani, R., Woodley, J. M., Rozada-Sanchez, R., Muller, F. (2011). Development of a fast and flexible generic process for the reduction of nitro compounds. Oral presentation at ECCE8 conference, Session: F³ Factory (Designing reaction), P 36, Berlin, Germany, 25-29 September.
23. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2011). Systematic Procedure for Generating Operational Policies to Achieve Target Crystal Size Distribution (CSD) in Batch Cooling Crystallization, Oral presentation at ICMSAO (International Conference on Modeling, Simulation and Applied Optimization), Kuala Lumpur, Malaysia, 19-21 April.
22. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2011). Systematic Modeling and Crystal Size Distribution Control for Batch Cooling Crystallization Processes”, Oral presentation at EuroPACT 2011, Session: Novel Process Design and Control Strategies, P 21, Paper no. 81, Glasgow, UK, 27 – 29 April.
21. **Singh, R.**, Rozada-Sanchez, R., Wrate, T., Muller, F., Gernaey, K. V., Gani, R., Woodley, J. M. (2011). A retrofit strategy to achieve “Fast, Flexible, Future (F³)” pharmaceutical production processes”, Poster presentation at ESCAPE 21, Session: Synthesis/Design, P 26, Greece, 29 May– 1 June.
20. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2011). Systematic Modeling of Generic Multi-dimensional Model-based System for Batch Cooling Crystallization Operations. Oral presentation at ESCAPE 21, Session: Multi-scale Modelling III, P 53, Greece, 29 May– 1 June.

Year 2010

19. **Singh, R.**, Gernaey, K. V., Gani, R., Woodley, J. M. (2010). Systematic Framework for Design and Adaption of “Flexible, Fast, and Future (F³) Production Processes. Oral presentation at AIChE annual meeting, Salt Lake city, Utah, USA, 7 - 12 November.
18. **Singh, R.**, Gernaey, K. V., Gani, R., Woodley, J. M. (2010). An ontological knowledge-based system for identification of efficient chemical production routes ”, Oral presentation at AIChE annual meeting (530c), Session: Cyberinfrastructure and Informatics for Knowledge Management, Salt Lake city, Utah, USA, 7 - 12 November.
17. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2010). A generic multidimensional model-based framework for batch cooling crystallization process. Oral presentation at AIChE annual meeting (164d), Session: Particle Formation and Crystallization Processes From Liquids, Slurries, and Emulsions II. Salt Lake city, Utah, USA, 7 - 12 November.
1. **Singh, R.**, Samad, N. A. F. A., Sin, G., Gernaey, K. V., Gani, R. (2010). Systematic method and tool for design, analysis &/or validation of PAT systems. Oral presentation at APACT-10, Manchester, UK, 28 - 30 April 2010.

15. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2010). Control of process operation and monitoring of product qualities through generic model-based in batch cooling crystallization. Oral presentation at ESCAPE 20, Ischia, Naples, **Italy**, 6 – 9 June 2010.
14. Muller, F., Davison, S., Montague, G. A., Martin, E. B., **Singh, R.**, Gernaey, K. V., Gani, R., Woodley, J. M. (2010). F³ process design for fine chemical and Pharmaceutical transformations. Oral presentation at CHISA2010 - ECCE7 conference, Prague, **Czech Republic**, 28August – 1st September, 2010.
13. **Singh, R.**, Gernaey, K. V., Gani, R. (2010). Systematic computer-aided method and tool (ICAS-PAT) for design, analysis &/or validation of process monitoring and analysis systems (PAT systems). Oral presentation at CHISA2010 - ECCE7 conference, Prague, **Czech Republic**, 28August – 1st September, 2010.
12. Samad, N. A. F. A., **Singh, R.**, Sin, G., Gernaey, K. V., Gani, R. (2010). A Generic Model-Based Framework for Batch Cooling Crystallization Processes. Poster presentation at PBM1010 (4th International Conference on Population Balance Modeling), Session P2: Crystallization, Berlin, **Germany**, September 15 – 17, 2010.

Years 2009-2007

11. **Singh, R.**, Gernaey, K. V., Gani, R. (2009). ICAS-PAT: A new software tool for systematic design/validation of process monitoring and analysis systems (PAT systems). APACT-09, Glasgow, **UK**, 05 - 07 May 2009.
10. **Singh, R.**, Gernaey, K. V., Gani, R. (2009). A software tool for design of process monitoring and analysis systems”, Oral presentation at ESCAPE19, Cracow, **Poland**, 14 – 19 June 2009.
09. **Singh, R.**, Samad, N. A. F. A., Sin, G., Gernaey, K. V., Gani, R. (2009). Application of ICAS-PAT on design of process monitoring and control system for a batch cooling crystallization process through hybrid multiscale model-based analysis. Oral presentation at AIChE annual meeting, Nashville, TN, **USA**, 8 – 13 November 2009.
08. **Singh, R.**, Gernaey, K. V., Gani, R. (2008). Off-line design of PAT systems for on-line applications”, Oral presentation at ESCAPE18, Lyon, **France**, June 2008.
07. Gernaey, K. V., Sin, G., Albo, E., Woodley, J. M., **Singh, R.**, Gani, R. (2008). Application of mechanistic models within a PAT framework. Oral presentation at ISPE, Malmö, Sweden, 1st October 2008.
06. **Singh, R.**, Gernaey, K. V., Gani, R. (2008). A model-based framework for systematic product quality monitoring and control”, Oral presentation at AIChE annual meeting (710e), Philadelphia, PA, **USA**, 16 – 21 November 2008.
05. **Singh, R.**, Gernaey, K. V., Gani, R. (2008). A software tool for design of process monitoring and analysis systems. Poster presentation at AIChE annual meeting, (577b), **Philadelphia**, PA, **USA**, 16 – 21 November 2008.
04. **Singh, R.**, Gernaey, K. V., Gani, R. (2007). Model-based Computer Aided Framework for Design of Process Monitoring and Analysis Systems. Oral presentation at APACT-07, Edinburgh, **UK**, 01 - 04 May 2007.
03. **Singh, R.**, Gernaey, K. V., Gani, R. (2007). Design of Process Monitoring and Analysis Systems, using a Model-based Computer Aided Framework. Oral presentation at ECCE6, Copenhagen, **Denmark**, 16 – 21 September 2007.
02. **Singh, R.**, Gernaey, K. V., Gani, R. (2007). “Design of Process Monitoring and Analysis Systems”, Oral presentation at AIChE annual meeting (556a), Salt Lake city, Utah, **USA**, 3 - 9 Nov. 2007.
01. **Singh, R.**, Gernaey, K. V., Gani, R. (2007). Supporting Tools for Design and Validation of PAT system. Poster presentation at AIChE annual meeting (517m), Salt Lake city, Utah, **USA**, 3 – 9 Nov. 2007.

5. Invited industrial/academic/regulatory presentations

1. **Singh, R. (2017).** Advanced control and data management of continuous pharmaceutical manufacturing process. Invited presentation at SynTQ user group meeting, **Optimal company**, Arlington, VA (Washington DC), **USA**, 25 - 26 April.
2. **Singh, R. (2015).** Application of synTQ for real time automatic advanced control of continuous pharmaceutical tablet manufacturing process. Invited presentation at SynTQ user group meeting, **Optimal company**, Arlington, VA (Washington DC), **USA**, 29 - 30 January.

3. Ramachandran, R., **Singh, R.**, Ierapetritou, M. (2015). Control Systems in Continuous Manufacturing. BMS-Rutgers Symposium, **Bristol-Myers Squibb (BMS) Company**, New Jersey, **USA**, 23 June 2015.
4. Barrasso, D., Chaudhury, A., **Singh, R.**, Ramachandran, R. (2013). Multi-scale Modeling of Particulate Processes. University of leads, UK, 25 June 2013.
5. Ierapetritou, M., **Singh, R.** (2012). Control theory and implementation to a continuous tablet manufacturing process. Invited presentation at US Food and Drug Administration (FDA), USA, November 2012.
6. **Singh, R.** (2010). Model-based Computer Aided Framework for Design of Process Monitoring and Analysis Systems (PAT systems). invited presentation given at Sartorius Company, Göttingen, Germany, 6th August, 2010.
7. **Singh, R.**, “Systematic methods and tool for PAT system design”, invited presentation given at Novo Nordisk A/S, Denmark, 5th October, 2010.
8. **Singh, R.**, “Systematic Framework for Design, Analysis and Validation of PAT systems”, invited presentation given at MATLS (Multivariate Analysis for the Technical and Life Sciences) meeting, Technical University of Denmark, Denmark, 17th November, 2010.

6. Conducted workshops

1. **Singh, R.** (2022). Workshop on “RTD toolbox” for US Food and Drug Administration, Virtual, 20th April 2022.
2. **Singh, R.** (2021). Workshop on “RTD Based Digital Twin model of Continuous Pharmaceutical Manufacturing Process” for US Food and Drug Administration, Virtual, 6th December 2021.
3. **Singh, R.** (2021). AIChE Workshop on “Covid-19: A Digital Twin of Flexible Modular Continuous API Manufacturing Process”, at Pandemic Advance Capabilities & Engineering (PACE) Workshops: Solutions in the Aftermath of COVID, Session 3: Strengthening the Supply Chain. Virtual, 17th November 2021.
4. **Singh, R.** (2021). Workshop on “Integrated flowsheet modelling” for Vertex, Virtual, 1st October 2021.
5. **Singh, R.**, “Implementation of the control system into the CM pilot-plant” at Compaction Simulation Forum, New Brunswick, New Jersey, 3rd June 2019.
6. **Singh, R.**, “Pharmaceutical process control” at Industrial Advisory Board Meeting of ERC-SOPS, Rutgers University, 17th October 2017.
7. **Singh, R.**, Ramachandran, R. Closed-loop Process Control of Pharmaceutical Manufacturing Processes. **Bristol-Myers Squibb (BMS)**, 20 July 2013.
8. **Singh, R.**, “implementation of PID and advanced model predictive controller to the continuous tablet manufacturing process” at Industrial Advisory Board Meeting of ERC-SOPS, Purdue University, 14th May 2013.
9. **Singh, R.**, “application of ICAS-PAT software for design of PAT systems”, workshop at Annual CAPEC external meeting, 9 – 11 June 2008.
10. **Singh, R.**, “Design of a control system for continuous manufacturing of pharmaceuticals” at Industrial Advisory Board Meeting of ERC-SOPS, Samuel Riggs IV Alumni Center College Park, MD, 21 November 2013.
11. **Singh, R.**, “Integration of Prediction from a Multivariate Sensor into a Process Control System” at Industrial Advisory Board Meeting of ERC-SOPS, Samuel Riggs IV Alumni Center College Park, MD, 21 November 2013.

7. Thesis Supervised (few examples)

1. Anderson, B. (2025). Advanced CFD modelling of continuous manufacturing of drug substance and product. Being supervised by Dr. Fernando Muzzio and **Dr. Ravendra Singh**. PhD Thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.

2. Kritikos, T. (2023). Mechanistic modeling and validation of multi-scale flow systems for process intensification. Supervised by Dr. George Tsilomelekis and **Dr. Ravendra Singh**. PhD Thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
3. Dashank Gohil (2021). Development of control strategy for bioreactor and refill strategy of feeding system. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
4. Yash Melkeri (2020). Model-based analysis and dynamic optimization of feeder refill strategy. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
5. Fernando Nunes de Barros (2018). Strategies for process control and tablet diversion in a direct compaction process. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
6. Aparajith Bhaskar (2018). Implementation of an Advanced Control Strategy into a Continuous Direct Compaction Pharmaceutical Tablet Manufacturing Process. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
7. Matthew Billups (2018). Modeling, Control and Material Traceability in Continuous Pharmaceutical Manufacturing. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
8. Glinka Cathy Pereira (2017). Combined Feed-forward/Feed-back Control of an Integrated Continuous Granulation Process. Supervised by **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.
9. Shishir Vadodaria (2016). Correlation of compression models to material properties: expanding pharmaceutical modeling techniques. Supervised by Dr. Marianthi G. Ierapetritou and **Dr. Ravendra Singh**. Master thesis, Department of Chemical and Biochemical Engineering, Rutgers University, NJ, USA.