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## Publication list Department of Chemical Engineering

### 2020

1. Broeckhoven, K., & Desmet, G. (2020). Advances and Challenges in Extremely High-Pressure Liquid Chromatography in Current and Future Analytical Scale Column Formats. *Analytical Chemistry*, 92(1), 554-560. <https://doi.org/10.1021/acs.analchem.9b04278>
2. Sharma, R., Segato, T., Delplancke, M-P., Baron, G., Terryn, H., Denayer, J., & Cousin-Saint-Remi, J. (2020). Hydrogen chloride removal from hydrogen gas by adsorption on hydrated ion-exchanged zeolites. *Chemical Engineering Journal*, 381. <https://doi.org/10.1016/j.cej.2019.122512>

### 2019

3. Degreef, B., Ngo, K., Jaquins-Gerstl, A., & Weber, S. G. (2019). A rotating operant chamber for use with microdialysis. *Journal of Neuroscience Methods*, 326, 108387-108394. <https://doi.org/10.1016/j.jneumeth.2019.108387>
4. Baca, M., Desmet, G., Ottevaere, P. D. I. H., & De Malsche, W. (2019). Achieving a Peak Capacity of 1800 Using an 8 m Long Pillar Array Column. *Analytical Chemistry*, 91(17), 10932-10936. <https://doi.org/10.1021/acs.analchem.9b02236>
5. Balashankar, V. S., Rajagopalan, A. K., De Pauw, R., Avila, A. M., & Rajendran, A. (2019). Analysis of a Batch Adsorber Analogue for Rapid Screening of Adsorbents for Postcombustion CO<sub>2</sub> Capture. *Industrial & Engineering Chemistry Research*, 58(8), 3314-3328. <https://doi.org/10.1021/acs.iecr.8b05420>
6. Danilov, V. A., De Schepper, P., Cousin-Saint-Remi, J., & Denayer, J. F. M. (2019). Concentration and temperature profiles in a fixed bed column based on an analytical solution of the axial dispersion model for binary and multicomponent non-isothermal adsorption processes. *Computers in Chemical Engineering*, 123, 78-86. <https://doi.org/10.1016/j.compchemeng.2018.12.026>
7. Rana, C., De Malsche, W., & De Wit, A. (2019). Decreased peak tailing during transport of solutes in porous media with alternate adsorption properties. *Chemical Engineering Science*, 203, 415-424. <https://doi.org/10.1016/j.ces.2019.04.003>
8. Sukas, S., Van Dorst, B., Kryj, A., Lagatie, O., De Malsche, W., & Stuyver, L. J. (2019). Development of a Lab-on-a-Disk Platform with Digital Imaging for Identification and Counting of Parasite Eggs in Human and Animal Stool. *Micromachines*, 10(12), [852]. <https://doi.org/10.3390/mi10120852>



9. Miyamoto, M., Iwatsuka, H., Oumi, Y., Uemiya, S., Van der Perre, S., Baron, G. V., & Denayer, J. F. M. (2019). Effect of core-shell structuring of chabazite zeolite with a siliceous zeolite thin layer on the separation of acetone-butanol-ethanol vapor in humid vapor conditions. *Chemical Engineering Journal*, 363, 292-299. <https://doi.org/10.1016/j.cej.2019.01.106>
10. Bhatt, T. S., Storti, G., Denayer, J. F. M., & Rota, R. (2019). Equilibrium Theory-Based Assessment of Dual-Reflux Pressure Swing Adsorption Cycles That Utilize Light Gas for Pressure Swing. *Industrial & Engineering Chemistry Research*, 58(1), 350-365. <https://doi.org/10.1021/acs.iecr.8b04415>
11. Adamopoulou, T., Nawada, S., Deridder, S., Wouters, B., Desmet, G., & Schoenmakers, P. J. (2019). Experimental and numerical study of band-broadening effects associated with analyte transfer in microfluidic devices for spatial two-dimensional liquid chromatography created by additive manufacturing. *Journal of Chromatography A*, 1598, 77-84. <https://doi.org/10.1016/j.chroma.2019.03.041>
12. Gelin, P. P., Van Lindt, J., Bratek-Skicki, A., Ziemecka, I., Stroobants, S., Krzek, M., ... Maes, D. (2019). Focusing of Microcrystals and Liquid Condensates in Acoustofluidics. *Crystals*, 9(3), [120]. <https://doi.org/10.3390/cryst9030120>
13. Codesido, S., Rudaz, S., Veuthey, J-L., Guillarme, D., Desmet, G., & Fekete, S. (2019). Impact of particle size gradients on the apparent efficiency of chromatographic columns. *Journal of Chromatography A*, 1603, 208-215. <https://doi.org/10.1016/j.chroma.2019.06.048>
14. Stadlmann, J., Hudecz, O., Krssakova, G., Ctortecka, C., Van Raemdonck, G., Op De Beeck, J., ... Mechtler, K. (2019). Improved Sensitivity in Low-Input Proteomics Using Micropillar Array-Based Chromatography. *Analytical Chemistry*, 91(22), 14203-14207. <https://doi.org/10.1021/acs.analchem.9b02899>
15. Vanderlinden, K., Desmet, G., & Broeckhoven, K. (2019). Measurement of the Band Broadening of UV Detectors used in Ultra-high Performance Liquid Chromatography using an On-tubing Fluorescence Detector. *Chromatographia*, 82(1), 489-498. <https://doi.org/10.1007/s10337-018-3622-1>
16. Shoykhet, K., Broeckhoven, K., & Dong, M. W. (2019). Modern HPLC Pumps: Perspectives, Principles, and Practices. *LC GC North America*, 37(6), 374.
17. Shoykhet, K., Broeckhoven, K., & Dong, M. W. (2019). Modern HPLC Pumps: Perspectives, Principles, and Practices. *LC-GC Europe*, 32(8), 410-419.
18. Miyamoto, M., Ono, S., Oumi, Y., Uemiya, S., van der Perre, S., Viridis, T., ... Denayer, J. F. M. (2019). Nanoporous ZSM-5 Crystals Coated with Silicalite-1 for Enhanced p-Xylene Separation. *ACS Applied Nano Materials*, 2(5), 2642-2650. <https://doi.org/10.1021/acsanm.9b00037>



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19. Pepermans, V., De Vos, J., Eeltink, S., & Desmet, G. (2019). Peak sharpening limits of solvent-assisted post-column refocusing to enhance detection limits in liquid chromatography. *Journal of Chromatography A*, 1586, 52-61. <https://doi.org/10.1016/j.chroma.2018.11.078>
20. Ziemecka, I., Gokalp, S., Stroobants, S., Brau, F., Maes, D., & De Wit, A. (2019). Polymorph Selection of ROY by Flow-Driven Crystallization. *Crystals*, 9(7), 351-361. <https://doi.org/10.3390/cryst9070351>
21. Wouters, S., Does-Sousa, J. L., Liu, Y., Pohl, C. A., & Eeltink, S. (2019). Ultra-High-Pressure Ion Chromatography with Suppressed Conductivity Detection at 70 MPa Using Columns Packed with 2.5  $\mu$ m Anion-Exchange Particles. *Analytical Chemistry*, 91(21), 13824-13830. <https://doi.org/10.1021/acs.analchem.9b03283>

## 2018

22. Jaspers, S., Deridder, S., & Desmet, G. (2018). A microfluidic distributor combining minimal volume, minimal dispersion and minimal sensitivity to clogging. *Journal of Chromatography A*, 1537, 75-82. <https://doi.org/10.1016/j.chroma.2018.01.029>
23. Tassi, M., De Vos, J., Chatterjee, S., Sobott, F., Bones, J., & Eeltink, S. (2018). Advances in native high-performance liquid chromatography and intact mass spectrometry for the characterization of biopharmaceutical products. *Journal of Separation Science*, 41(1), 125-144. <https://doi.org/10.1002/jssc.201700988>
24. Van Assche, T., Baron, G., & Denayer, J. (2018). An explicit multicomponent adsorption isotherm model: accounting for the size-effect for components with Langmuir adsorption behavior. *Adsorption*, 24(6), 517-530. <https://doi.org/10.1007/s10450-018-9962-1>
25. Broeckhoven, K., Eeltink, S., De Malsche, W., Matheuse, F., Desmet, G., & Cabooter, D. (2018). Current and Future Chromatographic Columns: Is One Column Enough to Rule Them All? *LC GC North America*, 36(6), 9-17.
26. Vanderlinden, K., Desmet, G., Bell, D., & Broeckhoven, K. (2018). Detailed efficiency analysis of columns with a different packing quality and confirmation via total pore blocking. *Journal of Chromatography A*, 1581, 55-62. <https://doi.org/10.1016/j.chroma.2018.10.052>
27. Baert, M., Martens, S., Desmet, G., De Villiers, A., Du Prez, F. E., & Lynen, F. (2018). Enhancing the Possibilities of Comprehensive Two-Dimensional Liquid Chromatography through Hyphenation of Purely Aqueous Temperature-Responsive and Reversed-Phase Liquid Chromatography. *Analytical Chemistry*, 90(8), 4961-4967. <https://doi.org/10.1021/acs.analchem.7b04914>
28. Hara, T., Futagami, S., De Malsche, W., Baron, G., & Desmet, G. (2018). Exploring the effect of mesopore size reduction on the column performance of silica-based open tubular capillary columns. *Journal of Chromatography A*, 1552, 87-91. <https://doi.org/10.1016/j.chroma.2018.03.050>



29. Tyteca, E., De Vos, J., Tassi, M., Cook, K., Liu, X., Kaal, E., & Eeltink, S. (2018). Generic approach to the method development of intact protein separations using hydrophobic interaction chromatography. *Journal of Separation Science*, 41(5), 1017-1024. <https://doi.org/10.1002/jssc.201701202>
30. Tanaka, S., Nagaoka, T., Yasuyoshi, A., Hasegawa, Y., & Denayer, J. F. M. (2018). Hierarchical Pore Development of ZIF-8 MOF by Simple Salt-Assisted Mechanosynthesis. *Crystal Growth & Design*, 18(1), 274-279. <https://doi.org/10.1021/acs.cgd.7b01211>
31. Pezzotta, C., Fleury, G., Soetens, M., Van der Perre, S., Denayer, J. F. M., Riant, O., & Gaigneaux, E. M. (2018). Improving the selectivity to 4-tert-butylresorcinol by adjusting the surface chemistry of heteropolyacid-based alkylation catalysts. *Journal of Catalysis*, 359, 198-211. <https://doi.org/10.1016/j.jcat.2018.01.010>
32. Blumberg, L., & Desmet, G. (2018). Kinetic performance factor A measurable metric of separation-time-pressure tradeoff in liquid and gas chromatography. *Journal of Chromatography A*, 1567, 26-36. <https://doi.org/10.1016/j.chroma.2018.06.048>
33. Song, H., Sadriaj, D., Desmet, G., & Cabooter, D. (2018). Methodologies to determine b-term coefficients revisited. *Journal of Chromatography A*, 1532, 124-135. <https://doi.org/10.1016/j.chroma.2017.11.070>
34. Viridis, T., Denayer, J., Baron, G., & Danilov, V. (2018). Non-Ideality in The Adsorption of Ethanol/Ethyl Acetate/Water Mixtures On ZIF-8 Metal Organic Framework. *Industrial & Engineering Chemistry Research*, 57(20), 7040-7047. <https://doi.org/10.1021/acs.iecr.8b00719>
35. Viridis, T., Danilov, V., Baron, G., & Denayer, J. (2018). Nonideality in the Adsorption of Ethanol/Ethyl Acetate/Water Mixtures On ZIF-8 Metal Organic Framework. *Industrial & Engineering Chemistry Research*, 57(20), 7040-7047. <https://doi.org/10.1021/acs.iecr.8b00719>
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38. Broeckhoven, K., Vanderlinden, K., Guillarme, D., & Desmet, G. (2018). On-tubing fluorescence measurements of the band broadening of contemporary injectors in ultra-high performance liquid chromatography. *Journal of Chromatography A*, 1535, 44-54. <https://doi.org/10.1016/j.chroma.2017.12.032>



39. Sandra, K., Vandenbussche, J., Vandenheede, I., Claerebout, B., Op De Beeck, J., Jacobs, P., ... Sandra, P. (2018). Peptide Mapping of Monoclonal Antibodies and Antibody-Drug Conjugates Using Micro-Pillar Array Columns Combined with Mass Spectrometry. *LC-GC Europe*, 31(3), 155-166.
40. Dores-Sousa, J. L., De Vos, J., Kok, W. T., & Eeltink, S. (2018). Probing selectivity of mixed-mode reversed-phase/weak-anion-exchange liquid chromatography to advance method development. *Journal of Chromatography A*, 1570, 75-81. <https://doi.org/10.1016/j.chroma.2018.07.067>
41. Hara, T., Izumi, Y., Nakao, M., Hata, K., Baron, G. V., Bamba, T., & Desmet, G. (2018). Silica-based hybrid porous layers to enhance the retention and efficiency of open tubular capillary columns with a 5  $\mu\text{m}$  inner diameter. *Journal of Chromatography A*, 1580, 63-71. <https://doi.org/10.1016/j.chroma.2018.10.023>
42. Adamopoulou, T., Deridder, S., Desmet, G., & Schoenmakers, P. J. (2018). Two-dimensional insertable separation tool (TWIST) for flow confinement in spatial separations. *Journal of Chromatography A*, 1577, 120-123. <https://doi.org/10.1016/j.chroma.2018.09.054>
43. Martin-Calvo, A., Van Der Perre, S., Claessens, B., Calero, S., & Denayer, J. (2018). Unravelling the influence of carbon dioxide on the adsorptive recovery of butanol from fermentation broth using ITQ-29 and ZIF-8. *Physical Chemistry Chemical Physics*, 20(15), 9957-9964. <https://doi.org/10.1039/c8cp01034j>
44. Couck, S., Cousin-Saint-Remi, J., Van der Perre, S., Baron, G. V., Minas, C., Ruch, P., & Denayer, J. F. M. (2018). 3D-printed SAPO-34 monoliths for gas separation. *Microporous and Mesoporous Materials*, 255, 185-191. <https://doi.org/10.1016/j.micromeso.2017.07.014>

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46. Wouters, B., Dapic, I., Valkenburg, T., Wouters, S., Niezen, L., Eeltink, S., ... Schoenmakers, P. (2017). A cyclic-olefin-copolymer microfluidic immobilized-enzyme reactor for rapid digestion of proteins from dried blood spots. *Journal of Chromatography A*, 1491, 36-42. <https://doi.org/10.1016/j.chroma.2017.01.078>
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51. Broeckhoven, K., & Desmet, G. (2017). Considerations for for the use of ultra-high pressures in liquid chromatography for 2.1 mm inner diameter columns. *Journal of Chromatography A*, 1523, 183-192. <https://doi.org/10.1016/j.chroma.2017.07.040>
52. Couck, S., Lefever, J., Mullens, S., Protasova, L., Meynen, V., Desmet, G., ... Denayer, J. (2017). CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub> separation with a 3DFD-printed ZSM-5 monolith. *Chemical Engineering Journal*, 308, 719-726. <https://doi.org/10.1016/j.cej.2016.09.046>
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62. Abd-Elnaiem, A., Asafa, T. B., Trivinho-Strixino, F., Delgado-Silva, A., Callewaert, M., & De Malsche, W. (2017). Optical reflectance from anodized Al-0.5 wt % Cu thin films: Porosity and refractive index calculations. *Journal of Alloys and Compounds*, 721, 741-749. <https://doi.org/10.1016/j.jallcom.2017.06.082>
63. Bhatt, T., Storti, G., Denayer, J., & Rota, R. (2017). Optimal design of dual-reflux pressure swing adsorption units via equilibrium theory: process configurations employing heavy gas for pressure swing. *Chemical Engineering Journal*, 311, 385-406. <https://doi.org/10.1016/j.cej.2016.11.111>
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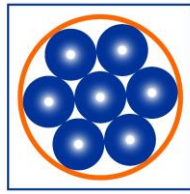


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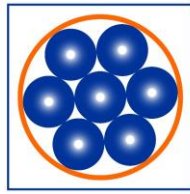
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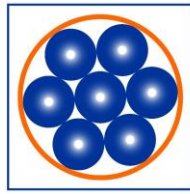
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