

## REFERENCES

- [1] T. Brousse *et al.*, “Materials for electrochemical capacitors,” *Springer Handbooks*, pp. 495–561, 2017, doi: 10.1007/978-3-662-46657-5\_16.
- [2] J. R. Miller and P. Simon, “Materials science: Electrochemical capacitors for energy management,” *Science (1979)*, vol. 321, no. 5889, pp. 651–652, 2008, doi: 10.1126/science.1158736.
- [3] M. Law, V. Ramar, and P. Balaya, “Na<sub>2</sub>MnSiO<sub>4</sub> as an attractive high capacity cathode material for sodium-ion battery,” *J Power Sources*, vol. 359, pp. 277–284, 2017, doi: 10.1016/j.jpowsour.2017.05.069.
- [4] K. Zhang, L. L. Zhang, X. S. Zhao, and J. Wu, “Graphene/polyaniline nanofiber composites as supercapacitor electrodes,” *Chemistry of Materials*, vol. 22, no. 4, pp. 1392–1401, 2010, doi: 10.1021/cm902876u.
- [5] C. Zhong, Y. Deng, W. Hu, J. Qiao, L. Zhang, and J. Zhang, “A review of electrolyte materials and compositions for electrochemical supercapacitors,” *Chem Soc Rev*, vol. 44, no. 21, pp. 7484–7539, 2015, doi: 10.1039/c5cs00303b.
- [6] Y. Zhai, Y. Dou, D. Zhao, P. F. Fulvio, R. T. Mayes, and S. Dai, “Carbon Materials for Chemical Capacitive Energy Storage,” *Advanced Materials*, vol. 23, no. 42, pp. 4828–4850, 2011, doi: 10.1002/adma.201100984.
- [7] Z. Tan, G. Chen, and Y. Zhu, “Carbon-Based Supercapacitors Produced by Activation of Graphene-supporting materials,” *Science (1979)*, vol. 1, no. June, pp. 211–225, 2015.
- [8] P. V. Kamat, “Graphene-based nanoarchitectures. Anchoring semiconductor and metal nanoparticles on a two-dimensional carbon support,” *Journal of Physical Chemistry Letters*, vol. 1, no. 2, pp. 520–527, 2010, doi: 10.1021/jz900265j.
- [9] Y. Wang *et al.*, “The Journal of Physical Chemistry C Volume 113 issue 30 2009 [doi 10.1021%2Fjp902214f] Wang, Yan; Shi, Zhiqiang; Huang, Yi; Ma, Yanfeng;

- Wang, Chengyan -- Supercapacitor Devices Based on Graphene Materials.pdf,” *Journal of Physical Chemistry C*, vol. 113, no. 30 2009, pp. 13103–13107, 2009.
- [10] G. Wang, L. Zhang, and J. Zhang, “A review of electrode materials for electrochemical supercapacitors,” *Chem Soc Rev*, vol. 41, no. 2, pp. 797–828, 2012, doi: 10.1039/c1cs15060j.
- [11] L. Zhang and X. S. Zhao, “Carbon-based materials as supercapacitor electrodes,” *Chem Soc Rev*, vol. 38, no. 9, pp. 2520–2531, 2009, doi: 10.1039/b813846j.
- [12] H. Jiang, P. S. Lee, and C. Li, “3D carbon based nanostructures for advanced supercapacitors,” *Energy Environ Sci*, vol. 6, no. 1, pp. 41–53, 2013, doi: 10.1039/c2ee23284g.
- [13] W. Gu and G. Yushin, “Review of nanostructured carbon materials for electrochemical capacitor applications: Advantages and limitations of activated carbon, carbide-derived carbon, zeolite-templated carbon, carbon aerogels, carbon nanotubes, onion-like carbon, and graphene,” *Wiley Interdiscip Rev Energy Environ*, vol. 3, no. 5, pp. 424–473, 2014, doi: 10.1002/wene.102.
- [14] M. Sawangphruk *et al.*, “High-performance supercapacitors based on silver nanoparticle-polyaniline- graphene nanocomposites coated on flexible carbon fiber paper,” *J Mater Chem A Mater*, vol. 1, no. 34, pp. 9630–9636, 2013, doi: 10.1039/c3ta12194a.
- [15] Y. Zhu *et al.*, “Graphene and graphene oxide: Synthesis, properties, and applications,” *Advanced Materials*, vol. 22, no. 35, pp. 3906–3924, 2010, doi: 10.1002/adma.201001068.
- [16] Q. Cheng, J. Tang, J. Ma, H. Zhang, N. Shinya, and L. C. Qin, “Graphene and carbon nanotube composite electrodes for supercapacitors with ultra-high energy density,” *Physical Chemistry Chemical Physics*, vol. 13, no. 39, pp. 17615–17624, 2011, doi: 10.1039/c1cp21910c.

- [17] M. F. El-Kady and R. B. Kaner, “Scalable fabrication of high-power graphene micro-supercapacitors for flexible and on-chip energy storage,” *Nat Commun*, vol. 4, pp. 1475–1479, 2013, doi: 10.1038/ncomms2446.
- [18] Y. Xu, Z. Lin, X. Huang, Y. Liu, Y. Huang, and X. Duan, “Flexible solid-state supercapacitors based on three-dimensional graphene hydrogel films,” *ACS Nano*, vol. 7, no. 5, pp. 4042–4049, 2013, doi: 10.1021/nn4000836.
- [19] P. Song, X. Zhang, M. Sun, X. Cui, and Y. Lin, “Synthesis of graphene nanosheets via oxalic acid-induced chemical reduction of exfoliated graphite oxide,” *RSC Adv*, vol. 2, no. 3, pp. 1168–1173, 2012, doi: 10.1039/c1ra00934f.
- [20] A. Elmouwahidi, E. Bailón-García, A. F. Pérez-Cadenas, A. Celzard, V. Fierro, and F. Carrasco-Marín, “Carbon Microspheres with Tailored Texture and Surface Chemistry As Electrode Materials for Supercapacitors,” *ACS Sustain Chem Eng*, vol. 9, no. 1, pp. 541–551, 2021, doi: 10.1021/acssuschemeng.0c08024.
- [21] S. Dalvand *et al.*, “A review on carbon material-metal oxide-conducting polymer and ionic liquid as electrode materials for energy storage in supercapacitors,” *Ionics (Kiel)*, vol. 30, no. 4, pp. 1857–1870, 2024, doi: 10.1007/s11581-024-05426-3.
- [22] C. Ma, X. Chen, D. Long, J. Wang, W. Qiao, and L. Ling, “High-surface-area and high-nitrogen-content carbon microspheres prepared by a pre-oxidation and mild KOH activation for superior supercapacitor,” *Carbon N Y*, vol. 118, pp. 699–708, 2017, doi: 10.1016/j.carbon.2017.03.075.
- [23] P. Forouzandeh, V. Kumaravel, and S. C. Pillai, “Electrode materials for supercapacitors: A review of recent advances,” *Catalysts*, vol. 10, no. 9, pp. 1–73, 2020, doi: 10.3390/catal10090969.
- [24] H. Lyu *et al.*, “Bis(trimethylsilyl) 2-fluoromalonate derivatives as electrolyte additives for high voltage lithium ion batteries,” *J Power Sources*, vol. 412, no. August 2018, pp. 527–535, 2019, doi: 10.1016/j.jpowsour.2018.11.083.

- [25] S. Kerisit, B. Schwenzer, and M. Vijayakumar, “Effects of oxygen-containing functional groups on supercapacitor performance,” *Journal of Physical Chemistry Letters*, vol. 5, no. 13, pp. 2330–2334, 2014, doi: 10.1021/jz500900t.
- [26] A. Elmouwahidi, E. Bailón-García, A. F. Pérez-Cadenas, A. Celzard, V. Fierro, and F. Carrasco-Marín, “Carbon Microspheres with Tailored Texture and Surface Chemistry As Electrode Materials for Supercapacitors,” *ACS Sustain Chem Eng*, vol. 9, no. 1, pp. 541–551, 2021, doi: 10.1021/acssuschemeng.0c08024.
- [27] A. G. Olabi, Q. Abbas, M. A. Abdelkareem, A. H. Alami, M. Mirzaeian, and E. T. Sayed, “Carbon-Based Materials for Supercapacitors: Recent Progress, Challenges and Barriers,” *Batteries*, vol. 9, no. 1, 2023, doi: 10.3390/batteries9010019.
- [28] A. Burk, “Ultracapacitors: why, how, and where is the technology,” *J Power Sources*, vol. 91, no. 1, pp. 37–50, 2000.
- [29] “Batteries In A Portable World,” 2021.
- [30] H. Kelly-Holmes, “Advertising as multilingual communication,” *Advertising as Multilingual Communication*, vol. 45, pp. 1–206, 2016, doi: 10.1057/9780230503014.
- [31] C. Meng, O. Z. Gall, and P. P. Irazoqui, “A flexible super-capacitive solid-state power supply for miniature implantable medical devices,” *Biomed Microdevices*, vol. 15, no. 6, pp. 973–983, 2013, doi: 10.1007/s10544-013-9789-1.
- [32] R. Dubey and V. Guruviah, “Review of carbon-based electrode materials for supercapacitor energy storage,” *Ionics (Kiel)*, vol. 25, no. 4, pp. 1419–1445, 2019, doi: 10.1007/s11581-019-02874-0.
- [33] T. Brousse, D. Bélanger, and J. W. Long, “To Be or Not To Be Pseudocapacitive?,” *J Electrochem Soc*, vol. 162, no. 5, pp. A5185–A5189, 2015, doi: 10.1149/2.0201505jes.
- [34] G. Gautham Prasad, N. Shetty, S. Thakur, Rakshitha, and K. B. Bommegowda, “Supercapacitor technology and its applications: A review,” *IOP Conf Ser Mater Sci Eng*, vol. 561, no. 1, 2019, doi: 10.1088/1757-899X/561/1/012105.

- [35] J. Zhang, M. Gu, and X. Chen, "Supercapacitors for renewable energy applications: A review," *Micro and Nano Engineering*, vol. 21, no. October, p. 100229, 2023, doi: 10.1016/j.mne.2023.100229.
- [36] M. T. Jeena *et al.*, "A siloxane-incorporated copolymer as an in situ cross-linkable binder for high performance silicon anodes in Li-ion batteries," *Nanoscale*, vol. 8, no. 17, pp. 9245–9253, 2016, doi: 10.1039/c6nr01559j.
- [37] X. T. Yang, Z. G. Liang, Y. J. Yuan, J. L. Yang, and H. Xia, "Preparation and electrochemical performance of porous carbon nanosphere," *Wuli Xuebao/Acta Physica Sinica*, vol. 66, no. 4, 2017, doi: 10.7498/aps.66.048101.
- [38] Y. Lu, C. Yang, H. Rong, and D. Pan, "Preparation of porous carbon microspheres," *J Appl Polym Sci*, vol. 102, no. 1, pp. 798–803, 2006, doi: 10.1002/app.24112.
- [39] H. Kim, M. E. Fortunato, H. Xu, J. H. Bang, and K. S. Suslick, "Carbon microspheres as supercapacitors," *Journal of Physical Chemistry C*, vol. 115, no. 42, pp. 20481–20486, 2011, doi: 10.1021/jp207135g.
- [40] P. A. T. Kelly, C. J. Davis, and G. M. Goodwin, "Differential patterns of local cerebral glucose utilization in response to 5-hydroxytryptamine, agonists," *Neuroscience*, vol. 25, no. 3, pp. 907–915, 1988, doi: 10.1016/0306-4522(88)90044-9.
- [41] H. Wang *et al.*, "Mn<sub>3</sub>O<sub>4</sub>-graphene hybrid as a high-capacity anode material for lithium ion batteries," *J Am Chem Soc*, vol. 132, no. 40, pp. 13978–13980, 2010, doi: 10.1021/ja105296a.
- [42] T. Najam *et al.*, "Nanostructure engineering by surficial induced approach: Porous metal oxide-carbon nanotube composite for lithium-ion battery," *Materials Science and Engineering: B*, vol. 273, no. December 2020, p. 115417, 2021, doi: 10.1016/j.mseb.2021.115417.
- [43] V. V. Khedekar, S. Mohammed Zaeem, and S. Das, "Graphene-metal oxide nanocomposites for supercapacitors: A perspective review," *Adv Mater Lett*, vol. 9, no. 1, pp. 2–19, 2018, doi: 10.5185/amlett.2018.1932.

- [44] Xian Jian *et al.*, “Carbon-Based Electrode Materials for Supercapacitor: Progress, Challenges and Prospective Solutions,” *J. of Electrical Engineering*, vol. 4, no. 2, Feb. 2016, doi: 10.17265/2328-2223/2016.02.004.
- [45] H. Kim, M. E. Fortunato, H. Xu, J. H. Bang, and K. S. Suslick, “Carbon microspheres as supercapacitors,” *Journal of Physical Chemistry C*, vol. 115, no. 42, pp. 20481–20486, 2011, doi: 10.1021/jp207135g.
- [46] C. Garnier *et al.*, “Activated carbon surface heterogeneity seen by parallel probing by inverse liquid chromatography at the solid/liquid interface and by gas adsorption analysis at the solid/gas interface,” *Carbon N Y*, vol. 45, no. 2, pp. 240–247, 2007, doi: 10.1016/j.carbon.2006.10.004.
- [47] M. Sevilla and A. B. Fuertes, “The production of carbon materials by hydrothermal carbonization of cellulose,” *Carbon N Y*, vol. 47, no. 9, pp. 2281–2289, 2009, doi: 10.1016/j.carbon.2009.04.026.
- [48] N. Zhao *et al.*, “Hierarchical porous carbon with graphitic structure synthesized by a water soluble template method,” *Mater Lett*, vol. 87, pp. 77–79, 2012, doi: 10.1016/j.matlet.2012.07.085.
- [49] M. D. Levi *et al.*, “Solving the capacitive paradox of 2D MXene using electrochemical quartz-crystal admittance and in situ electronic conductance measurements,” *Adv Energy Mater*, vol. 5, no. 1, pp. 1–11, 2015, doi: 10.1002/aenm.201400815.
- [50] J. Chmiola, P. L. T. Celine Largeot, P. Simon, and Y. Gogotsi, “Monolithic carbide-derived carbon films for micro-supercapacitors,” *Science (1979)*, vol. 328, no. 5977, pp. 480–483, 2010, doi: 10.1126/science.1184126.
- [51] C. Liu, F. Li, M. Lai-Peng, and H. M. Cheng, “Advanced materials for energy storage,” *Advanced Materials*, vol. 22, no. 8, pp. 28–62, 2010, doi: 10.1002/adma.200903328.

- [52] J. Yan, Q. Wang, T. Wei, and Z. Fan, “Recent advances in design and fabrication of electrochemical supercapacitors with high energy densities,” *Adv Energy Mater*, vol. 4, no. 4, 2014, doi: 10.1002/aenm.201300816.
- [53] J. Y. Miao *et al.*, “Synthesis and properties of carbon nanospheres grown by CVD using Kaolin supported transition metal catalysts,” *Carbon N Y*, vol. 42, no. 4, pp. 813–822, 2004, doi: 10.1016/j.carbon.2004.01.053.
- [54] Z. N. Tetana, S. D. Mhlanga, and N. J. Coville, “Chemical vapour deposition syntheses and characterization of boron-doped hollow carbon spheres,” *Diam Relat Mater*, vol. 74, no. 2016, pp. 70–80, 2017, doi: 10.1016/j.diamond.2017.02.005.
- [55] R. Panickar, C. B. Sobhan, and S. Chakravorti, “Chemical vapor deposition synthesis of carbon spheres: Effects of temperature and hydrogen,” *Vacuum*, vol. 172, no. November 2019, p. 109108, 2020, doi: 10.1016/j.vacuum.2019.109108.
- [56] M. M. Titirici, M. Antonietti, and A. Thomas, “A generalized synthesis of metal oxide hollow spheres using a hydrothermal approach,” *Chemistry of Materials*, vol. 18, no. 16, pp. 3808–3812, 2006, doi: 10.1021/cm052768u.
- [57] M. Sevilla and A. B. Fuertes, “The production of carbon materials by hydrothermal carbonization of cellulose,” *Carbon N Y*, vol. 47, no. 9, pp. 2281–2289, 2009, doi: 10.1016/j.carbon.2009.04.026.
- [58] Q. Wu, W. Li, J. Tan, Y. Wu, and S. Liu, “Hydrothermal carbonization of carboxymethylcellulose: One-pot preparation of conductive carbon microspheres and water-soluble fluorescent carbon nanodots,” *Chemical Engineering Journal*, vol. 266, pp. 112–120, 2015, doi: 10.1016/j.cej.2014.12.089.
- [59] V. Pavlenko *et al.*, *A comprehensive review of template-assisted porous carbons: Modern preparation methods and advanced applications*, vol. 149, no. May. 2022. doi: 10.1016/j.mser.2022.100682.
- [60] P. Gurunathan, M. G. Karthick Babu, and K. Ramesha, “ Template assisted synthesis of Sn@C microspheres and SnO<sub>2</sub>@C micro bowls as anode for Li-Ion batteries ,” *Energy Storage*, vol. 2, no. 5, pp. 1–14, 2020, doi: 10.1002/est2.152.

- [61] C. Wang *et al.*, “Recent progress in template-assisted synthesis of porous carbons for supercapacitors,” *Advanced Powder Materials*, vol. 1, no. 2, p. 100018, 2022, doi: 10.1016/j.apmate.2021.11.005.
- [62] Y. Xie, D. Kocaefe, C. Chen, and Y. Kocaefe, “Review of Research on Template Methods in Preparation of Nanomaterials,” *J Nanomater*, vol. 2016, 2016, doi: 10.1155/2016/2302595.
- [63] J. Xu *et al.*, “Fabrication of wrinkled carbon microspheres and the effect of surface roughness on the microwave absorbing properties,” *Chemical Engineering Journal*, vol. 401, p. 126027, 2020, doi: 10.1016/j.cej.2020.126027.
- [64] H. Wang, X. Li, J. Peng, Y. Cai, J. Jiang, and Q. Li, “Control of the interface graphitized/amorphous carbon of biomass-derived carbon microspheres for symmetric supercapacitors,” *Nanoscale Adv*, vol. 3, no. 16, pp. 4858–4865, 2021, doi: 10.1039/d1na00262g.
- [65] L. Frusteri *et al.*, “Carbon microspheres preparation, graphitization and surface functionalization for glycerol etherification,” *Catal Today*, vol. 277, pp. 68–77, 2016, doi: 10.1016/j.cattod.2016.02.044.
- [66] A. Elmouwahidi, E. Bailón-García, A. F. Pérez-Cadenas, A. Celzard, V. Fierro, and F. Carrasco-Marín, “Carbon Microspheres with Tailored Texture and Surface Chemistry As Electrode Materials for Supercapacitors,” *ACS Sustain Chem Eng*, vol. 9, no. 1, pp. 541–551, 2021, doi: 10.1021/acssuschemeng.0c08024.
- [67] H. Kim, M. E. Fortunato, H. Xu, J. H. Bang, and K. S. Suslick, “Carbon microspheres as supercapacitors,” *Journal of Physical Chemistry C*, vol. 115, no. 42, pp. 20481–20486, 2011, doi: 10.1021/jp207135g.
- [68] H. Kim, M. E. Fortunato, H. Xu, J. H. Bang, and K. S. Suslick, “Carbon microspheres as supercapacitors,” *Journal of Physical Chemistry C*, vol. 115, no. 42, pp. 20481–20486, 2011, doi: 10.1021/jp207135g.
- [69] A. Peigney, C. Laurent, E. Flahaut, R. R. Bacsa, and A. Rousset, “CNTの比表面積の求め方.pdf,” *Carbon N Y*, vol. 39, p. 507, 2001.

- [70] A. G. Pandolfo and A. F. Hollenkamp, "Carbon properties and their role in supercapacitors," *J Power Sources*, vol. 157, no. 1, pp. 11–27, 2006, doi: 10.1016/j.jpowsour.2006.02.065.
- [71] C. Liang, Z. Li, and S. Dai, "Mesoporous carbon materials: Synthesis and modification," *Angewandte Chemie - International Edition*, vol. 47, no. 20, pp. 3696–3717, 2008, doi: 10.1002/anie.200702046.
- [72] A. Lenshof and T. Laurell, "Continuous separation of cells and particles in microfluidic systems," *Chem Soc Rev*, vol. 39, no. 3, pp. 1203–1217, 2010, doi: 10.1039/b915999c.
- [73] L. R. Radovic, A. B. Silva-Tapia, and F. Vallejos-Burgos, "Oxygen migration on the graphene surface. 1. Origin of epoxide groups," *Carbon N Y*, vol. 49, no. 13, pp. 4218–4225, 2011, doi: 10.1016/j.carbon.2011.05.059.
- [74] T. Jain *et al.*, "Corrigendum to 'End-to-end assembly of gold nanorods via oligopeptide linking and surfactant control' [J. Colloid Interface Sci. 376 (2012) 83-90]," *J Colloid Interface Sci*, vol. 384, no. 1, p. 217, 2012, doi: 10.1016/j.jcis.2012.06.059.
- [75] S. Kang, M. Pinault, L. D. Pfefferle, and M. Elimelech, "Single-walled carbon nanotubes exhibit strong antimicrobial activity," *Langmuir*, vol. 23, no. 17, pp. 8670–8673, 2007, doi: 10.1021/la701067r.
- [76] A. H. Lu, E. L. Salabas, and F. Schüth, "Magnetic nanoparticles: Synthesis, protection, functionalization, and application," *Angewandte Chemie - International Edition*, vol. 46, no. 8, pp. 1222–1244, 2007, doi: 10.1002/anie.200602866.
- [77] N. Kaur, S. Gupta, V. K. Jindal, and K. Dharamvir, "Pressure induced transformations in condensed and molecular phases of C<sub>60</sub>," *Carbon N Y*, vol. 48, no. 3, pp. 744–755, 2010, doi: 10.1016/j.carbon.2009.10.021.
- [78] F. Safizadeh and E. Ghali, "Monitoring passivation of Cu-Sb and Cu-Pb anodes during electrorefining employing electrochemical noise analyses," *Electrochim Acta*, vol. 56, no. 1, pp. 93–101, 2010, doi: 10.1016/j.electacta.2010.09.046.

- [79] N. Surugau and P. L. Urban, “Electrophoretic methods for separation of nanoparticles,” *J Sep Sci*, vol. 32, no. 11, pp. 1889–1906, 2009, doi: 10.1002/jssc.200900071.
- [80] M. P. Hughes, “Strategies for dielectrophoretic separation in laboratory-on-a-chip systems,” *Electrophoresis*, vol. 23, no. 16, pp. 2569–2582, 2002, doi: 10.1002/1522-2683(200208)23:16<2569::AID-ELPS2569>3.0.CO;2-M.
- [81] J. Fu *et al.*, “Selective adsorption and separation of organic dyes from aqueous solution on polydopamine microspheres,” *J Colloid Interface Sci*, vol. 461, pp. 292–304, 2016, doi: 10.1016/j.jcis.2015.09.017.
- [82] R. Nasiri *et al.*, “Microfluidic-Based Approaches in Targeted Cell/Particle Separation Based on Physical Properties: Fundamentals and Applications,” *Small*, vol. 16, no. 29, pp. 1–27, 2020, doi: 10.1002/sml.202000171.
- [83] D. R. Breed, R. Thibault, F. Xie, Q. Wang, C. J. Hawker, and D. J. Pine, “Functionalization of polymer microspheres using click chemistry,” *Langmuir*, vol. 25, no. 8, pp. 4370–4376, 2009, doi: 10.1021/la801880u.
- [84] N. P. Ivleva, “Chemical Analysis of Microplastics and Nanoplastics: Challenges, Advanced Methods, and Perspectives,” *Chem Rev*, vol. 121, no. 19, pp. 11886–11936, 2021, doi: 10.1021/acs.chemrev.1c00178.
- [85] D. Walls and J. M. Walker, “Protein Chromatography,” *Protein Chromatography*, vol. 1485, p. 423, 2017, doi: 10.1007/978-1-4939-6412-3.
- [86] B. Bao *et al.*, “Recent advances in microfluidics-based chromatography—a mini review,” *Separations*, vol. 8, no. 1, pp. 1–19, 2021, doi: 10.3390/separations8010003.
- [87] P. Y. Yeh, N. A. A. Rossi, J. N. Kizhakkedathu, and M. Chiao, “A silicone-based microfluidic chip grafted with carboxyl functionalized hyperbranched polyglycerols for selective protein capture,” *Microfluid Nanofluidics*, vol. 9, no. 2–3, pp. 199–209, 2010, doi: 10.1007/s10404-009-0535-1.

- [88] J. J. Benítez *et al.*, “Microfluidic extraction, stretching and analysis of human chromosomal DNA from single cells,” *Lab Chip*, vol. 12, no. 22, pp. 4848–4854, 2012, doi: 10.1039/c2lc40955k.
- [89] D. Feng, T. Xu, H. Li, X. Shi, and G. Xu, “Single-cell Metabolomics Analysis by Microfluidics and Mass Spectrometry: Recent New Advances,” *J Anal Test*, vol. 4, no. 3, pp. 198–209, 2020, doi: 10.1007/s41664-020-00138-9.
- [90] M. Sarma, J. Lee, S. Ma, S. Li, and C. Lu, “A diffusion-based microfluidic device for single-cell RNA-seq,” *Lab Chip*, vol. 19, no. 7, pp. 1247–1256, 2019, doi: 10.1039/c8lc00967h.
- [91] L. Mats, G. T. T. Gibson, and R. D. Oleschuk, “Plastic LC/MS microchip with an embedded microstructured fibre having the dual role of a frit and a nanoelectrospray emitter,” *Microfluid Nanofluidics*, vol. 16, no. 1–2, pp. 73–81, 2014, doi: 10.1007/s10404-013-1221-x.
- [92] X. Wang, L. Yi, N. Mukhitov, A. M. Schrell, R. Dhumpa, and M. G. Roper, “Microfluidics-to-mass spectrometry: A review of coupling methods and applications,” *J Chromatogr A*, vol. 1382, pp. 98–116, 2015, doi: 10.1016/j.chroma.2014.10.039.
- [93] S. W. Lin, C. H. Chang, and C. H. Lin, “High-throughput Fluorescence Detections in Microfluidic Systems,” *Genomic Medicine, Biomarkers, and Health Sciences*, vol. 3, no. 1, pp. 27–38, 2011, doi: 10.1016/S2211-4254(11)60005-8.
- [94] M. Pumera, “Contactless conductivity detection for microfluidics: Designs and applications,” *Talanta*, vol. 74, no. 3, pp. 358–364, 2007, doi: 10.1016/j.talanta.2007.05.058.
- [95] P. Xue *et al.*, “Isolation and elution of Hep3B circulating tumor cells using a dual-functional herringbone chip,” *Microfluid Nanofluidics*, vol. 16, no. 3, pp. 605–612, 2014, doi: 10.1007/s10404-013-1250-5.

- [96] J. C. Contreras-Naranjo, H. J. Wu, and V. M. Ugaz, "Microfluidics for exosome isolation and analysis: Enabling liquid biopsy for personalized medicine," *Lab Chip*, vol. 17, no. 21, pp. 3558–3577, 2017, doi: 10.1039/c7lc00592j.
- [97] N. E. Song *et al.*, "Development and application of a multi-residue method to determine pesticides in agricultural water using quechers extraction and lc-ms/ms analysis," *Separations*, vol. 7, no. 4, pp. 1–12, 2020, doi: 10.3390/separations7040052.
- [98] A. F. Wali *et al.*, "Lc-ms phytochemical screening, in vitro antioxidant, antimicrobial and anticancer activity of microalgae nannochloropsis oculata extract," *Separations*, vol. 7, no. 4, pp. 1–11, 2020, doi: 10.3390/separations7040054.
- [99] A. Oliva and M. Llabrés, "Validation of a size-exclusion chromatography method for bevacizumab quantitation in pharmaceutical preparations: Application in a biosimilar study," *Separations*, vol. 6, no. 3, pp. 1–12, 2019, doi: 10.3390/separations6030043.
- [100] W. De Malsche, J. Op De Beeck, S. De Bruyne, H. Gardeniers, and G. Desmet, "Realization of  $1 \times 10^6$  theoretical plates in liquid chromatography using very long pillar array columns," *Anal Chem*, vol. 84, no. 3, pp. 1214–1219, 2012, doi: 10.1021/ac203048n.
- [101] F. Detobel *et al.*, "Fabrication and chromatographic performance of porous-shell pillar-array columns," *Anal Chem*, vol. 82, no. 17, pp. 7208–7217, 2010, doi: 10.1021/ac100971a.
- [102] W. De Malsche, H. Eghbali, D. Clicq, J. Vangelooven, H. Gardeniers, and G. Desmet, "Pressure-driven reverse-phase liquid chromatography separations in ordered nonporous pillar array columns," *Anal Chem*, vol. 79, no. 15, pp. 5915–5926, 2007, doi: 10.1021/ac070352p.

- [103] J. young Kim and D. O'Hare, "Monolithic nano-porous polymer in microfluidic channels for lab-chip liquid chromatography," *Nano Converge*, vol. 5, no. 1, pp. 1–7, 2018, doi: 10.1186/s40580-018-0151-4.
- [104] H. Yin, K. Killeen, R. Brennen, D. Sobek, M. Werlich, and T. Van De Goor, "Microfluidic chip for peptide analysis with an integrated HPLC column, sample enrichment column, and nanoelectrospray tip," *Anal Chem*, vol. 77, no. 2, pp. 527–533, 2005, doi: 10.1021/ac049068d.
- [105] J. De Vos, M. Dams, K. Broeckhoven, G. Desmet, B. Horstkotte, and S. Eeltink, "Prototyping of a Microfluidic Modulator Chip and Its Application in Heart-Cut Strong-Cation-Exchange-Reversed-Phase Liquid Chromatography Coupled to Nanoelectrospray Mass Spectrometry for Targeted Proteomics," *Anal Chem*, vol. 92, no. 3, pp. 2388–2392, 2020, doi: 10.1021/acs.analchem.9b05141.
- [106] A. M. Striegel and A. K. Brewer, "Hydrodynamic chromatography," *Annual Review of Analytical Chemistry*, vol. 5, pp. 15–34, 2012, doi: 10.1146/annurev-anchem-062011-143107.
- [107] L. Duan and L. Yobas, "On-chip hydrodynamic chromatography of DNA through centimeters-long glass nanocapillaries," *Analyst*, vol. 142, no. 12, pp. 2191–2198, 2017, doi: 10.1039/c7an00499k.
- [108] L. J. Millet, J. D. Lucheon, R. F. Standaert, S. T. Retterer, and M. J. Doktycz, "Modular microfluidics for point-of-care protein purifications," *Lab Chip*, vol. 15, no. 8, pp. 1799–1811, 2015, doi: 10.1039/c5lc00094g.
- [109] J. P. Murrphy *et al.*, "Ion chromatography on-chip," *J Chromatogr A*, vol. 924, no. 1–2, pp. 233–238, 2001, doi: 10.1016/S0021-9673(01)00855-X.
- [110] M. Rahbar, A. R. Wheeler, B. Paull, and M. Macka, "Ion-Exchange Based Immobilization of Chromogenic Reagents on Microfluidic Paper Analytical Devices," *Anal Chem*, vol. 91, no. 14, pp. 8756–8761, 2019, doi: 10.1021/acs.analchem.9b01288.

- [111] A. Murphy, B. Gorey, K. De Guzman, N. Kelly, E. P. Nesterenko, and A. Morrin, “Microfluidic paper analytical device for the chromatographic separation of ascorbic acid and dopamine,” *RSC Adv*, vol. 5, no. 113, pp. 93162–93169, 2015, doi: 10.1039/c5ra16272f.
- [112] R. Ishibashi, K. Mawatari, K. Takahashi, and T. Kitamori, “Development of a pressure-driven injection system for precisely time controlled attoliter sample injection into extended nanochannels,” *J Chromatogr A*, vol. 1228, pp. 51–56, 2012, doi: 10.1016/j.chroma.2011.05.095.
- [113] M. Kato, M. Inaba, T. Tsukahara, K. Mawatari, A. Hibara, and T. Kitamori, “Femto liquid chromatography with attoliter sample separation in the extended nanospace channel,” *Anal Chem*, vol. 82, no. 2, pp. 543–547, 2010, doi: 10.1021/ac9017605.
- [114] A. Smirnova, H. Shimizu, Y. Pihosh, K. Mawatari, and T. Kitamori, “On-Chip Step-Mixing in a T-Nanomixer for Liquid Chromatography in Extended-Nanochannels,” *Anal Chem*, vol. 88, no. 20, pp. 10059–10064, 2016, doi: 10.1021/acs.analchem.6b02395.
- [115] H. Shimizu, K. Morikawa, Y. Liu, A. Smirnova, K. Mawatari, and T. Kitamori, “Femtoliter high-performance liquid chromatography using extended-nano channels,” *Analyst*, vol. 141, no. 21, pp. 6068–6072, 2016, doi: 10.1039/c6an01195k.
- [116] K. Tsougeni, P. Zerefos, A. Tserepi, A. Vlahou, S. D. Garbis, and E. Gogolides, “TiO<sub>2</sub>-ZrO<sub>2</sub> affinity chromatography polymeric microchip for phosphopeptide enrichment and separation,” *Lab Chip*, vol. 11, no. 18, pp. 3113–3120, 2011, doi: 10.1039/c1lc20133f.
- [117] Q. Min, X. Chen, X. Zhang, and J. J. Zhu, “Tailoring of a TiO<sub>2</sub> nanotube array-integrated portable microdevice for efficient on-chip enrichment and isotope labeling of serum phosphopeptides,” *Lab Chip*, vol. 13, no. 19, pp. 3853–3861, 2013, doi: 10.1039/c3lc50548k.

- [118] D. Zhao, Z. He, G. Wang, H. Wang, Q. Zhang, and Y. Li, “Three-dimensional ordered titanium dioxide-zirconium dioxide film-based microfluidic device for efficient on-chip phosphopeptide enrichment,” *J Colloid Interface Sci*, vol. 478, pp. 227–235, 2016, doi: 10.1016/j.jcis.2016.05.054.
- [119] J. J. Lee *et al.*, “Synthetic ligand-coated magnetic nanoparticles for microfluidic bacterial separation from blood,” *Nano Lett*, vol. 14, no. 1, pp. 1–5, 2014, doi: 10.1021/nl3047305.
- [120] V. Murlidhar *et al.*, “A radial flow microfluidic device for ultra-high-throughput affinity-based isolation of circulating tumor cells,” *Small*, vol. 10, no. 23, pp. 4895–4904, 2014, doi: 10.1002/sml.201400719.
- [121] Z. Zhao, Y. Yang, Y. Zeng, and M. He, “A microfluidic ExoSearch chip for multiplexed exosome detection towards blood-based ovarian cancer diagnosis,” *Lab Chip*, vol. 16, no. 3, pp. 489–496, 2016, doi: 10.1039/c5lc01117e.
- [122] S. J. Reinholt and H. G. Craighead, “Microfluidic Device for Aptamer-Based Cancer Cell Capture and Genetic Mutation Detection,” *Anal Chem*, vol. 90, no. 4, pp. 2601–2608, 2018, doi: 10.1021/acs.analchem.7b04120.
- [123] S. Magdeldin and A. Moser, “Affinity Chromatography: Principles and Applications,” *Affinity Chromatography*, no. March 2012, 2012, doi: 10.5772/39087.
- [124] E. K. Sackmann, A. L. Fulton, and D. J. Beebe, “The present and future role of microfluidics in biomedical research,” *Nature*, vol. 507, no. 7491, pp. 181–189, 2014, doi: 10.1038/nature13118.
- [125] S. Song, L. Wang, J. Li, C. Fan, and J. Zhao, “Aptamer-based biosensors,” *TrAC - Trends in Analytical Chemistry*, vol. 27, no. 2, pp. 108–117, 2008, doi: 10.1016/j.trac.2007.12.004.
- [126] C. Chen *et al.*, “Microfluidic isolation and transcriptome analysis of serum microvesicles,” *Lab Chip*, vol. 10, no. 4, pp. 505–511, 2010, doi: 10.1039/b916199f.

- [127] “Unknown - 1976 - © 1976 Nature Publishing Group,” 1976.
- [128] P. Li, Y. Gao, and D. Pappas, “Multiparameter cell affinity chromatography: Separation and analysis in a single microfluidic channel,” *Anal Chem*, vol. 84, no. 19, pp. 8140–8148, 2012, doi: 10.1021/ac302002a.
- [129] S. R. Pullagurla *et al.*, “Parallel affinity-based isolation of leukocyte subsets using microfluidics: Application for stroke diagnosis,” *Anal Chem*, vol. 86, no. 8, pp. 4058–4065, 2014, doi: 10.1021/ac5007766.
- [130] M. He, J. Crow, M. Roth, Y. Zeng, and A. K. Godwin, “Integrated immunoisolation and protein analysis of circulating exosomes using microfluidic technology,” *Lab Chip*, vol. 14, no. 19, pp. 3773–3780, 2014, doi: 10.1039/c4lc00662c.
- [131] L. Wang, G. Musile, and B. R. McCord, “An aptamer-based paper microfluidic device for the colorimetric determination of cocaine,” *Electrophoresis*, vol. 39, no. 3, pp. 470–475, 2018, doi: 10.1002/elps.201700254.
- [132] S. Fatemeh Shams, M. R. Ghazanfari, and C. Schmitz-Antoniak, “Magnetic-plasmonic heterodimer nanoparticles: Designing contemporarily features for emerging biomedical diagnosis and treatments,” *Nanomaterials*, vol. 9, no. 1, 2019, doi: 10.3390/nano9010097.
- [133] P. Figueiredo *et al.*, “In vitro evaluation of biodegradable lignin-based nanoparticles for drug delivery and enhanced antiproliferation effect in cancer cells,” *Biomaterials*, vol. 121, pp. 97–108, 2017, doi: 10.1016/j.biomaterials.2016.12.034.
- [134] H. L. Nguyen, H. N. Nguyen, H. H. Nguyen, M. Q. Luu, and M. H. Nguyen, “Nanoparticles: Synthesis and applications in life science and environmental technology,” *Advances in Natural Sciences: Nanoscience and Nanotechnology*, vol. 6, no. 1, 2015, doi: 10.1088/2043-6262/6/1/015008.
- [135] T. Lu, Z. Li, W. Fan, X. Zhang, and Q. Lv, “Nanoparticles for Inhibition of Asphaltenes Deposition during CO<sub>2</sub> Flooding,” *Ind Eng Chem Res*, vol. 55, no. 23, pp. 6723–6733, 2016, doi: 10.1021/acs.iecr.5b04893.

- [136] M. Kesente *et al.*, “Encapsulation of olive leaves extracts in biodegradable PLA nanoparticles for use in cosmetic formulation,” *Bioengineering*, vol. 4, no. 3, 2017, doi: 10.3390/bioengineering4030075.
- [137] K. Lee, J. Lee, D. Ha, M. Kim, and T. Kim, “Low-electric-potential-assisted diffusiophoresis for continuous separation of nanoparticles on a chip,” *Lab Chip*, vol. 20, no. 15, pp. 2735–2747, 2020, doi: 10.1039/d0lc00196a.
- [138] M. Seo, S. Park, D. Lee, H. Lee, and S. J. Kim, “Continuous and spontaneous nanoparticle separation by diffusiophoresis,” *Lab Chip*, vol. 20, no. 22, pp. 4118–4127, 2020, doi: 10.1039/d0lc00593b.
- [139] V. V. Khutoryanskiy, “Beyond PEGylation: Alternative surface-modification of nanoparticles with mucus-inert biomaterials,” *Adv Drug Deliv Rev*, vol. 124, pp. 140–149, 2018, doi: 10.1016/j.addr.2017.07.015.
- [140] X. Li *et al.*, “Control of nanoparticle penetration into biofilms through surface design,” *Chemical Communications*, vol. 51, no. 2, pp. 282–285, 2015, doi: 10.1039/c4cc07737g.
- [141] E. D. H. Mansfield, K. Sillence, P. Hole, A. C. Williams, and V. V. Khutoryanskiy, “POZylation: a new approach to enhance nanoparticle diffusion through mucosal barriers,” *Nanoscale*, vol. 7, no. 32, pp. 13671–13679, 2015, doi: 10.1039/c5nr03178h.
- [142] J. T. Huckaby and S. K. Lai, “PEGylation for enhancing nanoparticle diffusion in mucus,” *Adv Drug Deliv Rev*, vol. 124, pp. 125–139, Jan. 2018, doi: 10.1016/j.addr.2017.08.010.
- [143] A. Parodi *et al.*, “Bromelain surface modification increases the diffusion of silica nanoparticles in the tumor extracellular matrix,” *ACS Nano*, vol. 8, no. 10, p. 9874–9883, Oct. 2014, doi: 10.1021/nn502807n.
- [144] A. A. S. Bhagat, H. Bow, H. W. Hou, S. J. Tan, J. Han, and C. T. Lim, “Microfluidics for cell separation,” *Med Biol Eng Comput*, vol. 48, no. 10, pp. 999–1014, 2010, doi: 10.1007/s11517-010-0611-4.

- [145] M. Ebadi, K. Buskaran, B. Saifullah, S. Fakurazi, and M. Z. Hussein, “The impact of magnesium–aluminum-layered double hydroxide-based polyvinyl alcohol coated on magnetite on the preparation of core-shell nanoparticles as a drug delivery agent,” *Int J Mol Sci*, vol. 20, no. 15, pp. 1–17, 2019, doi: 10.3390/ijms20153764.
- [146] G. B. Kale, “Thermodynamic Diffusion Coefficients,” *Defect and Diffusion Forum*, vol. 279, pp. 39–52, 2008, doi: 10.4028/www.scientific.net/ddf.279.39.
- [147] C. D’Agostino, M. D. Mantle, L. F. Gladden, and G. D. Moggridge, “Prediction of binary diffusion coefficients in non-ideal mixtures from NMR data: Hexane-nitrobenzene near its consolute point,” *Chem Eng Sci*, vol. 66, no. 17, pp. 3898–3906, 2011, doi: 10.1016/j.ces.2011.05.014.
- [148] G. D. Moggridge, “Prediction of the mutual diffusivity in binary non-ideal liquid mixtures from the tracer diffusion coefficients,” *Chem Eng Sci*, vol. 71, pp. 226–238, 2012, doi: 10.1016/j.ces.2011.12.016.
- [149] F. d’Orlyé, A. Varenne, and P. Gareil, “Determination of nanoparticle diffusion coefficients by Taylor dispersion analysis using a capillary electrophoresis instrument,” *J Chromatogr A*, vol. 1204, no. 2, pp. 226–232, 2008, doi: 10.1016/j.chroma.2008.08.008.
- [150] W. R. Bowen and A. Mongrue, “Calculation of the collective diffusion coefficient of electrostatically stabilised colloidal particles,” *Colloids Surf A Physicochem Eng Asp*, vol. 138, no. 2–3, pp. 161–172, 1998, doi: 10.1016/S0927-7757(96)03954-4.
- [151] E. G. Scheibel, “Physical Chemistry in Chemical Engineering Design,” *Ind Eng Chem*, vol. 46, no. 8, pp. 1569–1579, 1954, doi: 10.1021/ie50536a023.
- [152] J. Grandgirard, D. Poinot, L. Krespi, J. P. Nénon, and A. M. Cortesero, “Costs of secondary parasitism in the facultative hyperparasitoid *Pachycrepoideus dubius*: Does host size matter?,” *Entomol Exp Appl*, vol. 103, no. 3, pp. 239–248, 2002, doi: 10.1023/A.

- [153] K. Keshmiri, M. Pourmohammadbagher, H. Huang, and N. Nazemifard, "Microfluidics to determine the diffusive mass transfer of a low viscosity solvent into a high viscosity hydrocarbon," *Fuel*, vol. 235, no. August 2018, pp. 1327–1336, 2019, doi: 10.1016/j.fuel.2018.08.108.
- [154] J. Qiu, B. Bao, S. Zhao, and X. Lu, "Microfluidics-based determination of diffusion coefficient for gas-liquid reaction system with hydrogen peroxide," *Chem Eng Sci*, vol. 231, p. 116248, 2021, doi: 10.1016/j.ces.2020.116248.
- [155] A. Kashani *et al.*, "Simulation of flow dynamics and heat transfer behavior of nanofluid in microchannel with rough surfaces," *International Journal of Thermofluids*, vol. 24, no. October, p. 100901, 2024, doi: 10.1016/j.ijft.2024.100901.
- [156] V. Y. Rudyak, S. L. Krasnolutskii, and D. A. Ivanov, "Molecular dynamics simulation of nanoparticle diffusion in dense fluids," *Microfluid Nanofluidics*, vol. 11, no. 4, pp. 501–506, 2011, doi: 10.1007/s10404-011-0815-4.
- [157] C. Lim, B. Yan, L. Yin, and L. Zhu, "Simulation of diffusion-induced stress using reconstructed electrodes particle structures generated by micro/nano-CT," *Electrochim Acta*, vol. 75, pp. 279–287, 2012, doi: 10.1016/j.electacta.2012.04.120.
- [158] D. L. Cheung, "Molecular simulation of nanoparticle diffusion at fluid interfaces," *Chem Phys Lett*, vol. 495, no. 1–3, pp. 55–59, 2010, doi: 10.1016/j.cplett.2010.06.074.
- [159] M. Shademan, R. M. Barron, and R. Balachandar, "Evaluation of OpenFOAM in Academic Research and Industrial Applications," no. May, pp. 1–7, 2013.
- [160] Y. Deng, S. Menon, Z. Lavrich, H. Wang, and C. L. Hagen, "Design, simulation, and testing of a novel micro-channel heat exchanger for natural gas cooling in automotive applications," *Appl Therm Eng*, vol. 110, pp. 327–334, 2017, doi: 10.1016/j.applthermaleng.2016.08.193.

- [161] A. Wilson, A. Singhai, and V. Rajput, "International Journal of Research Publication and Reviews Simulation of Micro-Channel Based on the Applying Different Boundary Conditions using ANSYS ( Fluent )," vol. 5, no. 1, pp. 5575–5587, 2024.
- [162] F. Ahmed, Y. Yoshida, J. Wang, K. Sakai, and T. Kiwa, "Design and validation of microfluidic parameters of a microfluidic chip using fluid dynamics," *AIP Adv*, vol. 11, no. 7, pp. 1–9, 2021, doi: 10.1063/5.0056597.
- [163] B. V. N. Sewwandi *et al.*, "Fabrication of size-tunable graphitized carbon spheres with hierarchical surface morphology on p-Si (100) by chemical vapour deposition," *Sri Lankan Journal of Physics*, vol. 22, no. 1, p. 80, 2021, doi: 10.4038/sljp.v22i1.8093.
- [164] Z. Lei, Z. Chen, and X. S. Zhao, "Growth of polyaniline on hollow carbon spheres for enhancing electrocapacitance," *Journal of Physical Chemistry C*, vol. 114, no. 46, pp. 19867–19874, 2010, doi: 10.1021/jp1084026.
- [165] H. Zhao, X. Lu, Y. Wang, B. Sun, X. Wu, and H. Lu, "Effects of additives on sucrose-derived activated carbon microspheres synthesized by hydrothermal carbonization," *J Mater Sci*, 2017, doi: 10.1007/s10853-017-1258-4.
- [166] Y. Zhang, W. Hou, H. Guo, S. Shi, and J. Dai, "Preparation and Characterization of Carbon Microspheres From Waste Cotton Textiles By Hydrothermal Carbonization," 2019, doi: 10.32604/jrm.2019.07884.
- [167] T. A. Khan, H. Kim, A. Gupta, S. Saidatul, and R. Jose, "Synthesis and characterization of carbon microspheres from rubber wood by hydrothermal carbonization," no. November, 2018, doi: 10.1002/jctb.5867.
- [168] S. Mourdikoudis and R. M. Pallares, "Characterization techniques for nanoparticles: comparison and complementarity upon studying," pp. 12871–12934, 2018, doi: 10.1039/c8nr02278j.

- [169] D. Casimir, H. Alghamdi, I. Y. Ahmed, R. Garcia-Sanchez, and P. Misra, "Raman Spectroscopy of Graphene, Graphite and Graphene Nanoplatelets," *2d Mater*, pp. 2–11, 2019, doi: 10.5772/intechopen.84527.
- [170] H. Budde *et al.*, "Raman Radiation Patterns of Graphene," *ACS Nano*, vol. 10, no. 2, pp. 1756–1763, 2016, doi: 10.1021/acsnano.5b06631.
- [171] O. Eren, N. Ucar, A. Onen, N. Kizildag, and I. Karacan, "Synergistic effect of polyaniline, nanosilver, and carbon nanotube mixtures on the structure and properties of polyacrylonitrile composite nanofiber," *J Compos Mater*, vol. 50, no. 15, pp. 2073–2086, 2016, doi: 10.1177/0021998315601891.
- [172] S. Sain *et al.*, "Synthesis and characterization of PMMA-cellulose nanocomposites by in situ polymerization technique," *J Appl Polym Sci*, vol. 126, no. SUPPL. 1, 2012, doi: 10.1002/app.36723.
- [173] J. Osswald and K. T. Fehr, "FTIR spectroscopic study on liquid silica solutions and nanoscale particle size determination," *J Mater Sci*, vol. 41, no. 5, pp. 1335–1339, 2006, doi: 10.1007/s10853-006-7327-8.
- [174] M. Drahansky *et al.*, "We are IntechOpen , the world ' s leading publisher of Open Access books Built by scientists , for scientists TOP 1 %," *Intech*, vol. i, no. tourism, p. 13, 2016, doi: <http://dx.doi.org/10.5772/57353>.
- [175] R. Antony, S. Theodore, D. Manickam, P. Kollu, and P. V Chandrasekar, "RSC Advances cyclohexane oxidation with hydrogen peroxide †," vol. 41, pp. 24820–24830, 2014, doi: 10.1039/c4ra01960a.

## LIST OF PUBLICATIONS

No	Description	Category	Impact Factor	Quartile
1	Zhichao Wang, Hongping Yu, Achini Liyanage, Junjie Qiu, Dilantha Thushara, Bo Bao, Shuangliang Zhao, (2022). Collective diffusion of charged nanoparticles in microchannel under electric field, Chemical Engineering Science, Volume 248, Part B, 117264, ISSN 0009-2509, (doi:10.1016/j.ces.2021.117264)	Indexed Journal SCIE, Scopus	4.44	Q1
2	Bao,B.; Wang,Z.; Thushara, D.; Liyanage, A.; Gunawardena, S.; Yang, Z.; Zhao, S. Recent Advances in Microfluidics-Based Chromatography- A MiniReview. Separations 2021, 8,3. (doi:10.3390/separations8010003)	Indexed Journal SCIE, Scopus	2.6	Q3
3	Liyanage, A.; Thushara, D.; Gunawardena, S. (2021). Simulation of Diffusive Transport of Nanoparticles under an Externally Applied Electric Field, From Innovation To Impact (FITI). (doi: 10.1109/FITI54902.2021.9833056)	Full paper, Conference proceeding		