Highlights from the Flow Chemistry Literature 2015 (Part 1)

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In this section of the journal, the literature on continuous-flow synthesis (primarily organic synthesis and functional materials) from the period of January–March 2015 is presented. All the publications are listed and ordered by journal name, with review articles grouped at the end. This time, there is no section on highlighted articles; however, from the next issue, a succinct overview of specific publications will be included in this section. From the next issue, some publications having engineering principles relevant to flow synthesis will also be included in this list with specific highlights that will give new insights on flow synthesis.

"A facile in situ self-assembly strategy for large-scale fabrication of CHS@MOF yolk/shell structure and its catalytic application in a flow system"
H. Gao, Y. Luan, K. Chaikittikul, W. Dong, J. Li, X. Zhang, G. Wang
ACS Applied Materials & Interfaces **2015**, *7*, 4667–4674

"Continuous nanofiltration and recycle of an asymmetric ketone hydrogenation catalyst"
E. J. O'Neal, J. Brathwaite, C. H. Lee, K. F. Jensen
ACS Catalysis **2015**, *5*, 2615–2622

"External trapping of halomethyllithium enabled by flow microreactors"
L. Degennaro, F. Fanelli, A. Giovine, R. Luisi
Advanced Synthesis & Catalysis **2015**, *357*, 21–27

"A three-minute synthesis and purification of ibuprofen: pushing the limits of continuous-flow processing"
D. R. Snead, T. F. Jamison
Angewandte Chemie, International Edition **2015**, *54*, 983–987

"Flow-enabled self-assembly of large-scale aligned nanowires"
B. Li, C. Zhang, B. Jiang, W. Han, Z. Lin
Angewandte Chemie, International Edition **2015**, *54*, 4250–4254

"Microfluidic synthesis of rigid nanovesicles for hydrophilic reagents delivery"
L. Zhang, Q. Feng, J. Wang, J. Sun, X. Shi, X. Jiang
Angewandte Chemie, International Edition **2015**, *54*, 3952–3956

"Control for divergent, continuous, multistep syntheses of active pharmaceutical ingredients"
D. Ghislieri, K. Gilmore, P. H. Seeberger
Angewandte Chemie, International Edition **2015**, *54*, 678–682

"A systems approach towards an intelligent and self-controlling platform for integrated continuous reaction sequences"
R. J. Ingham, C. Battilocchio, D. E. Fitzpatrick, E. Sliwinski, J. M. Hawkins, S. V. Ley
Angewandte Chemie, International Edition **2015**, *54*, 144–148

"Flow-enabled self-assembly of large-scale aligned nanowires"
B. Li, C. Zhang, B. Jiang, W. Han, Z. Lin
Angewandte Chemie, International Edition **2015**, *54*, 4250–4254

"Rapid and efficient copper-catalyzed Finkelstein reaction of (hetero) aromatics under continuous-flow conditions"
M. Chen, S. Ichikawa, S. L. Buchwald
Angewandte Chemie, International Edition **2015**, *127*, 265–268

"Highly effective continuous-flow monolithic silica microreactors for acid catalyzed processes"
A. Koreniuk, K. Maresz, K. Odrozek, A. B. Jarzębski, J. Mrowiec-Białoń
Applied Catalysis A: General **2015**, *489*, 203–208

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DOI: 10.1556/1846.2015.00020

"Palladium on carbon-catalyzed Suzuki–Miyaura coupling reaction using an efficient and continuous flow system"
T. Hattori, A. Tsubone, Y. Sawama, Y. Monguchi, H. Sajiki
Catalysts **2015**, *5*, 18–25

"Heterogenization of Pd–NHC complexes onto a silica support and their application in Suzuki–Miyaura coupling under batch and continuous flow conditions"
A. Martínez, J. L. Krinsky, I. Peñafiel, S. Castillón, K. Loponov, A. Lapkin, C. Claver
Catalysis Science & Technology **2015**, *5*, 310–319

"Triethanolamine synthesis in a continuous flow microchannel reactor"
D. V. Andreev, L. L. Makarshin, A. G. Gribovskii, D. Y. Yushchenko, E. E. Sergeev, E. G. Zhizhina, V. N. Parmon
Chemical Engineering Journal **2015**, *259*, 252–256

"The continuous flow synthesis of 2,4,5-trifluorobenzoic acid via sequential Grignard exchange and carboxylation reactions using microreactors"
Q. Deng, R. Shen, Z. Zhao, M. Yan, L. Zhang
Chemical Engineering Journal **2015**, *262*, 1168–1174

"A versatile Carberry-type microcatalytic reactor for transient and/or continuous flow operation at atmospheric or medium pressure"
E. L. Fornero, J. L. Giombi, D. L. Chiavassa, A. L. Bonivardi, M. A. Baltanás
Chemical Engineering Journal **2015**, *264*, 664–671

"Characterization method for separation devices based on micro technology"
T. Wellsandt, B. Stanisch, J. Strube
Chemie Ingenieur Technik **2015**, *87*, 150–158

"The sequential continuous-flow hydrothermal synthesis of molybdenum disulphide"
P. W. Dunne, A. S. Munn, C. L. Starkey, E. H. Lester
Chemical Communications **2015**, *51*, 4048–4050

"Watching polymers grow: real time monitoring of polymerizations via an on-line ESI-MS/microreactor coupling"
J. J. Haven, J. Vandenbergh, T. Junkers
Chemical Communications **2015**, *51*, 4611–4614

"Continuous flow reduction of artemisinic acid utilizing multi-injection strategies—closing the gap towards a fully continuous synthesis of antimalarial drugs"
B. Pieber, T. Glasnov, C. O. Kappe
Chemistry – A European Journal **2015**, *21*, 4368–4376

"Immobilization and continuous recycling of photoredox catalysts in ionic liquids for applications in batch reactions and flow systems: catalytic alkene isomerization by using visible light"
D. C. Fabry, M. A. Ronge, M. Rueping
Chemistry – A European Journal **2015**, *21*, 5350–5354

"Continuous photo fermentative production of hydrogen by immobilized Rhodobacter sphaeroides OU 001"
R. Zagrodnik, K. Seifert, M. Stodolny, M. Laniecki
International Journal of Hydrogen Energy **2015**, *40*, 5062–5073

"Aminopropyl-silica-supported Cu nanoparticles: an efficient catalyst for continuous-flow Huisgen azide-alkyne cycloaddition (CuAAC)"
R. P. Jumde, C. Evangelisti, A. Mandoli, N. Scotti, R. Psaro
Journal of Catalysis **2015**, *324*, 25–31

"Iridium(I)-catalyzed ortho-directed hydrogen isotope exchange in continuous-flow reactors"
E. Habraken, P. Haspeslagh, M. Vliegen, T. Noël
Journal of Flow Chemistry **2015**, *5*, 2–5

"Synthesis of N-hydroxypyrazin-2(1H)-ones via selective O-debenzylation of 1-benzyloxypyrazin-2(1H)-ones using flow methodology"
A. Mai, W. De Borggraeve
Journal of Flow Chemistry **2015**, *5*, 6–10

"Continuous-flow hydroisomerization of C5–C7 alkanes using mechanochemically synthesized supported Pt and Pd–SBA-15 materials"
J. Hidalgo, A. Pineda, R. Arancon, R. Černý, M. Climent, A. Romero, R. Luque
Journal of Flow Chemistry **2015**, *5*, 11–16

"Continuous-flow stereoselective synthesis in microreactors: nucleophilic additions to nitrostyrenes organocatalyzed by a chiral bifunctional catalyst"
S. Rossi, M. Benaglia, A. Puglisi, C. Filippo, M. Maggini
Journal of Flow Chemistry **2015**, *5*, 17–21

"Catalytic properties of platinum nanoparticles obtained in a single step simultaneous reduction of Pt(IV) ions and graphene oxide"
M. Wojnicki, M. Luty-Błocho, K. Mech, J. Grzonka, K. Fitzner, K. Kurzydłowski
Journal of Flow Chemistry **2015**, *5*, 22–30

"Understanding the performance of a microfluidic electrolysis cell for routine organic electrosynthesis"
R. Green, R. Brown, D. Pletcher
Journal of Flow Chemistry **2015**, *5*, 31–36

"Wall-coated polymer brushes as support for chiral organocatalysts in microreactors"
R. Munirathinam, A. Leoncini, J. Huskens, H. Wormeester, W. Verboom
Journal of Flow Chemistry **2015**, *5*, 37–42

"Palladium-catalyzed carbon–carbon cross-coupling reactions in thermomorphous double emulsions"
V. Misuk, A. Mai, K. Giannopoulos, D. Karl, J. Heinrich, D. Rauber, H. Löwe
Journal of Flow Chemistry **2015**, *5*, 43–47

"Massive, generic, and controlled microencapsulation by flow focusing: some physicochemical aspects and new applications"
A. Gañán-Calvo, E. Castro-Hernández, M. Flores-Mosquera, L. Martín-Banderas
Journal of Flow Chemistry **2015**, *5*, 48–54

"Immobilized palladium nanoparticles on potassium zirconium phosphate as an efficient recoverable heterogeneous catalyst for a clean Heck reaction in flow"
C. Petrucci, M. Cappelletti, O. Piermatti, M. Nocchetti, M. Pica, F. Pizzo, L. Vaccaro
Journal of Molecular Catalysis A: Chemical **2015**, *401*, 27–34

"Novel synthesis of thick wall coatings of titania supported Bi poisoned Pd catalysts and application in selective hydrogenation of acetylene alcohols in capillary microreactors"
N. Cherkasov, A. O. Ibhadon, E. V. Rebrov
Lab on a Chip **2015**, *15*, 1952–1960

"Site-specific protein modification using immobilized sortase in batch and continuous-flow systems"
M. D. Witte, T. Wu, C. P. Guimaraes, C. S. Theile, A. E. Blom, J. R. Ingram, H. L. Ploegh
Nature Protocols **2015**, *10*, 508–516

"Flow synthesis of ethyl isocyanoacetate enabling the telescoped synthesis of 1,2,4-triazoles and pyrrolo-[1,2-c] pyrimidines"
M. Baumann, A. M. R. Garcia, I. R. Baxendale
Organic & Biomolecular Chemistry **2015**, *13*, 4231–4239

"Development of a flow method for the hydroboration/oxidation of olefins"
J. A. Souto, R. A. Stockman, S. V. Ley,
Organic & Biomolecular Chemistry **2015**, *13*, 3871–3877

"Organocatalyzed Beckmann rearrangement of cyclohexanone oxime in a microchemical system"
J. Zhang, C. Dong, C. Du, G. Luo
Organic Process Research & Development **2015**, *19*, 352–356

"Large-scale continuous flow transformation of oximes into fused-bicyclic isoxazolidines: an example of process intensification"
J. A. Rincón, C. Mateos, P. García-Losada, D. J. Mergott
Organic Process Research & Development **2015**, *19*, 347–351

"Preparation of PEGA grafted poly(chloromethylstyrene-co-ethylene glycol dimethacrylate) monolith for high-efficiency solid phase peptide synthesis under continuous flow techniques"
R. Zhang, Q. Li, Y. Huang, L. Zhao, P. Ye, G. Ma, Z. Su
Polymer **2015**, *61*, 115–122

"Synergic effect of nano-catalyst and continuous flow system: Dakin–West reaction catalyzed by Nafion-H@SPIONs in a microreactor"
Z. A. Narei, B. Shafiee, A. R. Khosropour
RSC Advances **2015**, *5*, 20132–20137

"Continuous flow photooxygenation of monoterpenes"
C. Y. Park, Y. J. Kim, H. J. Lim, J. H. Park, M. J. Kim, S. W. Seo, C. P. Park
RSC Advances **2015**, *5*, 4233–4237

"Continuous flow vortex fluidic synthesis of silica xerogel as a delivery vehicle for curcumin"
C. L. Tong, U. H. Stroeher, M. H. Brown, C. L. Raston
RSC Advances **2015**, *5*, 7953–7958

"Facile azide formation via diazotransfer reaction in a copper tube flow reactor"
K. Nuyts, M. Ceulemans, T. N. Parac-Vogt, G. Bultynck, W. M. De Borggraeve
Tetrahedron Letters **2015**, *56*, 1687–1690

"Hydrothermal continuous flow synthesis and exfoliation of NiCo layered double hydroxide nanosheets for enhanced oxygen evolution catalysis"
H. Liang, F. Meng, M. Cabán-Acevedo, L. Li, A. Forticaux, L. Xiu, Z. Wang, S. Jin
Nano Letters **2015**, *15*, 1421–1427

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"Synthesis of uniform α-Si_3N_4 nanospheres by RF induction thermal plasma and their application in high thermal conductive nanocomposites"
G. Hou, B. Cheng, F. Ding, M. Yao, P. Hu, F. Yuan
ACS Applied Materials & Interfaces **2015**, *7*, 2873–2881

Microfluidic reactor synthesis and photocatalytic behavior of Cu@Cu_2O nanocomposite
C. L. Xu, S. Kannan, J. H. Peng, M. Yan, D. Zhang, L. Zhang
Applied Surface Science **2015**, *331*, 449–454

"Continuous flow preparation of iron oxide nanoparticles supported on porous silicates"
A. Yepez, F. L. Y. Lam, A. A. Romero, C. O. Kappe, R. Luque
ChemCatChem **2015**, *7*, 276–282

"Microfluidic supercritical antisolvent continuous processing and direct spray-coating of poly(3-hexylthiophene) nanoparticles for OFET devices"
R. Couto, S. Chambon, C. Aymonier, E. Mignard, B. Pavageau, A. Erriguible, S. Marre
Chemical Communications **2015**, *51*, 1008–1011

"Continuous synthesis of size-tunable silver nanoparticles by a green electrolysis method and multi-electrode design for high yield"
Z. Huang, H. Jiang, P. Liu, J. Sun, D. Guo, J. Shan, N. Gu
Journal of Materials Chemistry A **2015**, *3*, 1925–1929

"A flexible lab-on-a-chip for the synthesis and magnetic separation of magnetite decorated with gold nanoparticles"
F. C. Cabrera, A. F. A. A. Melo, J. C. P. de Souza, A. E. Job, F. N. Crespilho
Lab on a Chip **2015**, *15*, 1835–1841

"Large-scale synthesis of high quality InP quantum dots in a continuous flow-reactor under supercritical conditions"
C. Ippen, B. Schneider, C. Pries, S. Kröpke, T. Greco, A. Holländer
Nanotechnology **2015**, *26*, 085604

"Flow synthesis of plasmonic gold nanoshells via a microreactor"
S. Watanabe, T. Hiratsuka, Y. Asahi, A. Tanaka, K. Mae, M. T. Miyahara
Particle and Particle System Characterization **2015**, *32*, 234–242

"An advanced centrifugal microsystem toward high-throughput multiplex colloidal nanocrystal synthesis"
B. H. Park, D. Kim, J. H. Jung, S. J. Oh, G. Choi, D. C. Lee, T. S. Seo
Sensors and Actuators B: Chemical **2015**, *209*, 927–933

"Simulation for scale-up of a confined jet mixer for continuous hydrothermal flow synthesis of nanomaterials"
Y. C. Ma, J. L. Jing, Y. Zhang, Z. X. Wang
The Journal of Supercritical Fluids **2015**, *98*, 211–221

Reviews:

"Flow chemistry: intelligent processing of gas–liquid transformations using a tube-in-tube reactor"
M. Brzozowski, M. O'Brien, S. V. Ley, A. Polyzos
Accounts of Chemical Research **2015**, *48*, 349–362

"Toward continuous and scalable production of colloidal nanocrystals by switching from batch to droplet reactors"
G. Niu, A. Ruditskiy, M. Vara, Y. Xia
Chemical Society Reviews **2015**, doi: 10.1039/C5CS00049A

"Microreactor array device"
P. Wiktor, A. Brunner, P. Kahn, J. Qiu, M. Magee, X. F. Bian, K. Karthikeyan, J. LaBaer
Scientific Reports **2015**, *5*, Article number: 8736, doi: 10.1038/srep08736

"Diazo compounds in continuous-flow technology"
S. T. R. Mueller, T. Wirth
ChemSusChem **2015**, *8*, 245–250