

Publication List

(Prof. Dr. Yan Lu, Helmholtz-Zentrum Berlin für Materialien und Energie)

Researcher ID: M-2034-2014 (<http://www.researcherid.com/rid/M-2034-2014>)

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Number of publications: 141

Invited review articles: 12

Book chapters: 3

Patents: 2

h-index: 48 (from Google scholar, Jan. 2021)

Number of citations: 10994

(Corresponding author is marked with *)

1. K. Dong, Y. Xu, J. Tan, M. Osenberg, F. Sun, Z. Kochovski, D. Tung Pham, S. Mei, A. Hilger, E. Ryan, Y. Lu,* J. Banhart, I. Manke, "Unravelling the Mechanism of Lithium Nucleation and Growth and the Interaction with the Solid Electrolyte Interface", *ACS Energy Lett.* **2021**.
 2. T. Quan, E. Hark, Y. Xu, I. Ahmet, C. Hohn, S. Mei, Y. Lu,* "Unveiling the Formation of Solid Electrolyte Interphase and its Temperature Dependence in Water-in-Salt Supercapacitors", *ACS Appl. Mater. & Interfaces* **2021**, 13, 3979–3990.
 3. D. Xie, S. Mei, Y. Xu, T. Quan, E. Hark, Z. Kochovski, Y. Lu,* "Efficient Sulfur Host Based on Yolk-Shelled Iron Oxide/Sulfide-Carbon Nanospindles for Lithium-Sulfur Batteries", *ChemSusChem* **2021**, 14, 1404-1413.
 4. D. Besold, S. Risse, Y. Lu, J. Dzubiella, M. Ballauff, "Kinetics of the reduction of 4-nitrophenol by silver nanoparticles immobilized in thermoresponsive core-shell nanoreactors", *Industrial & Engineering Chemistry Research* **2021**, 60, 10, 3922–3935.
 5. M. Rothe, Y. Zhao, J. Müller, G. Kewes, C. Koch, Y. Lu, O. Benson, "Self-Assembly of Plasmonic Nano-Antenna-Waveguide Structures for Sub-Diffractive Chiral Sensing", *ACS Nano* **2021**, 15, 351–361.
- **2020** -----
6. R. Liu, Z. Kochovski, L. Li, Y. Yin, J. Yang, G. Yang, G. Tao, A. Xu, E. Zhang, H. M. Ding, Y. Lu,* G. Chen, M. Jiang, "Fabrication of Pascal-triangle Lattice of Proteins by Inducing Ligand Strategy", *Angew. Chem. Int. Ed.* **2020**, 59, 9617-9623.
 7. T. Quan, Y. Xu, M. Tovar, N. Goubard-Bretesché, Z. Li, Z. Kochovski, H. Kirmse, K. Skrodczky, S. Mei, H. Yu, D. Abou-Ras, M. Wagemaker, Y. Lu*, "Hollow MoS₃ nanospheres as electrode material for "water-in-salt" Li-ion batteries", *Batteries & Supercaps* **2020**, 3, 1-11.
 8. S. Mei, X. Xu, R. D. Priestley, Y. Lu,* "Polydopamine-based nanoreactors:

- synthesis and applications in bioscience and energy materials”, *Chem. Sci.* **2020**, 11, 12269 – 12281.
9. X. Pan, S. Mei, Y. Lu*, J. Yuan, “Synthetic advances of internally nanostructured polymer particles: from and beyond block copolymer”, *Nano Select* **2020**, 1, 639-658.
 10. Z. Kochovski, G. Chen, J. Yuan, Y. Lu*, “Cryo-Electron microscopy for the study of self-assembled poly(ionic liquid) nanoparticles and protein supramolecular structures”, *Colloid Polym. Sci.* **2020**, 298, 707-717.
 11. H. Wang, Y. Shao, S. Mei, Y. Lu, M. Zhang, J. Sun, K. Matyjaszewski, M. Antonietti, J. Yuan, “Polymer-derived Heteroatom-doped Porous Carbon Materials”, *Chem. Rev.* **2020**, 120, 9363-9419.
 12. F. Sun, D. Zhou, X. He, M. Osenberg, K. Dong, L. Chen, S. Mei, A. Hilger, H. Markötter, Y. Lu, S. Dong, S. Marathe, C. Rau, X. Hou, J. Li, M. Stan, M. Winter, R. Dominko, I. Manke, “The Morphological Reversibility of Modified-Li based Anode for Next Generation Batteries”, *ACS Energy Lett.* **2020**, 5, 152-161.
 13. S. Gu, S. Risse, Y. Lu, M. Ballauff, “Mechanism of the oxidation of 3,3’,5,5’-tetramethylbenzidine catalyzed by peroxidase-like Pt nanoparticles immobilized in spherical polyelectrolyte brushes: A kinetic study”, *ChemPhysChem* **2020**, 21, 450-458.
 14. M. Khodeir, H. Jia, S. Antoun, C. Friebe, U. S. Schubert, Y. Lu, E. Van Ruymbeke, J.-F. Gohy, “Synthesis and Characterization of Hydrogels Containing Redox-Responsive 2,2,6,6-Tetramethylpiperidinyloxy Methacrylate and Thermo-Responsive N-Isopropylacrylamide”, *J. Polym. Sci.* **2020**, 58, 1553-1563.
 15. H. Jia, C. Friebe, U. S. Schubert, T. Quan, Y. Lu, J.-F. Gohy, “Core-shell nanoparticles with a redox polymer core and a silica porous shell as high-performance cathode material for Lithium ion batteries”, *Energy Technology* **2020**, 8, 1901040.
 16. J. Walkowiak, Y. Lu, M. Gradzielski, S. Zauscher, M. Ballauff, „Thermodynamic analysis of the uptake of a protein in a spherical polyelectrolyte brush“, *Macromol. Rapid Commun.* **2020**, 41, 1900421.

----- 2019 -----

17. S. Mei, Z. Kochovski, R. Roa, S. Gu, X. Xu, H. Yu, J. Dzubiella, M. Ballauff, Y. Lu*, “Enhanced Catalytic Activity of Gold@Polydopamine Nanoreactors with Multi-Compartment Structure under NIR irradiation”, *NANO-MICRO LETT.* **2019**, 11, 83.
18. H. Yu, T. Quan, S. Mei, Z. Kochovski, W. Huang, H. Meng, Y. Lu*, "Prompt

Electrodeposition of Ni Nanodot Clusters on Nickel Foam to Construct a High-performance Water Splitting Electrode: Efficient, Scalable, and Recyclable", *NANO-MICRO LETT.* **2019**, 11, 41.

19. T. Quan, N. Goubard-Bretesché, E. Härk, Z. Kochovski, S. Mei, N. Pinna, M. Ballauff, Y. Lu*, "Highly Dispersible Hexagonal Carbon-MoS₂-Carbon Nanoplates with Hollow Sandwich Structures for Supercapacitors", *Chem. Eur. J.* **2019**, 25, 4745-4766.
20. S. Zhang, Z. Kochovski, H. Lee, Y. Lu, H. Zhang, J. Zhang, J. Sun, J. Yuan, "Ionic Organic Cage-encapsulating Phase-transferable Metal Clusters", *Chem. Sci.* **2019**, 10, 1450-1456.
21. G. Yang, W. Zheng, G. Tao, L. Wu, Q. Zhou, Z. Kochovski, T. Ji, H. Chen, X. Li, Y. Lu, H. Ding, H. Yang, G. Chen, M. Jiang, "Diversiform and Transformable Glyco-Nanostructures Constructed from Amphiphilic Supramolecular Metallo-carbohydrates through Hierarchical Self-Assembly: The Balance between Metallacycles and Saccharides", *ACS Nano* **2019**, 13, 13474-13485.
22. H. Jia, T. Quan, X. Liu, L. Bai, J. Wang, F. Boujioui, R. Ye, A. Vlad, Y. Lu, J.-F. Gohy, "Core-shell nanostructured organic redox polymer cathodes with superior performance", *Nano Energy* **2019**, 64, 103949.
23. M. Rothe, Y. Zhao, G. Kewes, Z. Kochovski, W. Sigle, P. A. van Aken, C. Koch, M. Ballauff, Y. Lu, O. Benson, "Silver nanowires with optimized silica coating as versatile plasmonic resonators", *Sci. Rep.* **2019**, 9(1), 3859.
24. X. Xu, S. Angioletti-Uberti, Y. Lu, J. Dzubiella, M. Ballauff, "Interaction of Proteins with Polyelectrolytes: A Comparison between Theory and Experiment", *Langmuir* **2019**, 35, 5373-5391.
25. M. Khodeir, B. Ernould, J. Brassinne, S. Ghiassinejad, H. Jia, S. Antoun, C. Friebe, U. S. Schubert, Z. Kochovski, Y. Lu, E. Van Ruymbeke, J.-F. Gohy, "Synthesis and characterisation of redox-responsive hydrogels based on stable nitroxide radicals", *Soft Matt.* **2019**, 15, 6418-6426.
26. N. A. Nakeeb, Z. Kochovski, T. Li, Y. Zhang, Y. Lu, B. V. K. J. Schmidt, "Poly(ethylene glycol) brush-b-poly(N-vinylpyrrolidone)-based double hydrophilic block copolymer particles crosslinked via crystalline α -cyclodextrin domains", *Soft Matter* **2019**, 9, 4993 - 5001.

----- 2018 -----

27. J. He, H. Gao, S. Mei, J. Kneer, X. Lin, Q. Ran, F. Wang, S. Palzer, Y. Lu*, "Cu₂O@PNIPAM core-shell microgels as novel inkjet materials for the preparation of CuO hollow porous nanocubes gas sensing layers", *J. Mater. Chem.*

C **2018**, **6**, 7249 - 7256.

28. F. Sun, M. Osenberg, K. Dong, D. Zhou, A. Hilger, C. J. Jafta, S. Risse, Y. Lu, H. Markötter, I. Manke, “Correlating Morphological Evolution of Li Electrodes With Degrading Electrochemical Performance of Li/LiCoO₂ and Li/S Battery Systems: Investigated by Synchrotron X-ray Phase Contrast Tomography”, *ACS Energy Letters* **2018**, **3**, 356-365.
29. F. Sun, K. Dong, M. Osenberg, A. Hilger, S. Risse, Y. Lu, P. Kamm, M. Klaus, H. Markötter, F. García-Moreno, T. Arlt, M. Ingo, “Visualizing Morphological and Compositional Evolution of Interface of InLi-anode|thio-LISION Electrolyte in All-Solid-State Li-S Cell by in operando Synchrotron X-ray Tomography and Energy Dispersive Diffraction”, *J. Mater. Chem. A* **2018**, **6**, 22489-22496.
30. R. Roaa, S. Angioletti-Uberti, Y. Lu, J. Dzubiella, F. Piazza, M. Ballauff, “Catalysis by Metallic Nanoparticles in Solution: Thermosensitive Microgels as Nanoreactors”, *Z. Phys. Chem.* **2018**, 232(5–6): 773–803.
31. Q. Ran, X. Xu, P. Dey, S. Yu, Y. Lu, J. Dzubiella, R. Haag, M. Ballauff, “Interaction of human serum albumin with dendritic polyglycerol sulfate: Rationalizing the thermodynamics of binding”, *J. Chem. Phys.* **2018**, 149, 163324.
32. W. Qi, Y. Zhang, Z. Kochovski, J. Wang, Y. Lu, G. Chen; M. Jiang, “Self-assembly of Human Galectin-1 via dual supramolecular interactions and its inhibition on T-cell agglutination”, *Nano Research* **2018**, **10**, 5566-5572.
33. G. Yang, R. Hu, H. Ding, Z. Kochovski, S. Mei, Y. Lu, Y. Ma, G. Chen, M. Jiang, “CO₂-switchable response of protein microtubule: behaviour and mechanism”, *Materials Chemistry Frontiers* **2018**, **2**, 1642-1646.
34. V. Živanović, Z. Kochovski, C. Arenz, Y. Lu, J. Kneipp, "SERS and Cryo-EM Directly Reveal Different Liposome Structures During Interaction with Gold Nanoparticles", *J. Phys. Chem. Lett.* **2018**, **9** (23), 6767–6772.

----- **2017** -----

35. S. Mei, C. J. Jafta, I. Lauer mann, Q. Ran, M. Kärgell, M. Ballauff, Y. Lu*, “Porous Ti₄O₇ Particles with Interconnected-Pores Structure as High-Efficiency Polysulfide Mediator for Lithium-Sulfur Batteries”, *Adv. Funct. Mater.* **2017**, **27**, 1701176.
36. H. Jia, J. Cao, Y. Lu*, “Design and fabrication of functional hybrid materials for catalytic applications”, *Current Opinion in Green and Sustainable Chemistry* **2017**, **4**, 16-22.
37. G. Yang, H. Ding, Z. Kochovski, R. Hu, Y. Lu, Y. Ma, G. Chen, M. Jiang, “Highly ordered self-assembly of native proteins into 1D, 2D and 3D structures modulated

- by a tether length of inducing ligands”, *Angew. Chem. Int. Ed.* **2017**, *56*, 10691-10695.
38. J. Sun, Z. Kochovski, W. Zhang, H. Kirmse, Y. Lu, M. Antonietti, J. Yuan, “A General Synthetic Route Towards Highly Dispersed Metal Clusters Enabled by Poly(ionic liquid)s”, *J. Am. Chem. Soc.* **2017**, *139*, 8971–8976.
39. Y. Yang, S. Risse, S. Mei, C. Jafta, Y. Lu, C. Stöcklein, N. Kardjilov, I. Manke, J. Gong, Z. Kochovski, M. Ballauff, “Binder-Free Carbon Monolith Cathode Material for Operando Investigation of High Performance Lithium-Sulfur Batteries with X-Ray Radiography”, *Energy Storage Materials* **2017**, *9*, 96-104.
40. W. Wang, L. Li, K. Henzler, Y. Lu, J. Wang, H. Han, Y. Tian, Y. Wang, Z. Zhou, G. Lotze, T. Narayanan, M. Ballauff, X. Guo, “Protein Immobilization onto Cationic Spherical Polyelectrolyte Brushes Studied by Small Angle X-Ray Scattering”, *Biomacromolecules* **2017**, *18* (5), 1574–1581.
41. H. Gao, H. Jia, B. Bierer, J. Wöllenstein, Y. Lu, S. Palzer, “Scalable gas sensors fabrication to integrate metal oxide nanoparticles with well-defined shape and size”, *Sensors and Actuators B: Chemical* **2017**, *249*, 639-646.

----- **2016** -----

42. Y. Lu, Matthias Ballauff, “Spherical Polyelectrolyte Brushes as Nanoreactors for the Generation of Metallic and Oxidic Nanoparticles: Synthesis and Application in Catalysis”, *Prog. Polym. Sci.* **2016**, *59*, 86-104.
43. H. Jia, R. Roa, S. Angioletti-Uberti, K. Henzler, A. Ott, X. Lin, J. Möser, Z. Kochovski, A. Schnegg, J. Dzubiella, M. Ballauff, Y. Lu*, “Thermosensitive Cu₂O-PNIPAM core-shell nanoreactors with tunable photocatalytic activity”, *J. Mater. Chem. A* **2016**, *4*, 9677-9684.
44. J. Cao, C. Jafta, J. Gong, Q. Ran, X. Lin, R. Félix, R. Wilks, M. Bär, J. Yuan, M. Ballauff, Y. Lu*, “Synthesis of Dispersible Mesoporous Nitrogen-doped Hollow Carbon Nanoplates with Uniform Hexagonal Morphologies for Supercapacitors”, *ACS Appl. Mater. Interfaces* **2016**, *8* (43), 29628–29636.
45. W. Zhang, Z. Kochovski, Y. Lu, B. V. K. J. Schmidt, M. Antonietti, J. Yuan, “Internal Morphology-Controllable Self-Assembly in Poly(Ionic Liquid) Nanoparticles”, *ACS Nano* **2016**, *10*, 7731-7737.
46. Y. Fu, Y. Lu, F. Polzer, M. Lux-Steiner, C. Fischer, “In-situ synthesis of stabilizer-free gold nanocrystals with controllable shape on substrates as highly active catalysts for multiple use”, *Adv. Synth. Catal.* **2016**, *358* (9), 1440-1448.
47. G. Yang, X. Zhang, Z. Kochovski, Y. Zhang, B. Dai, F. Sakai, L. Jiang, Y. Lu, M. Ballauff, X. Li, C. Liu, G. Chen, M. Jiang, “Precise and reversible protein

- microtubule-like structure with helicity driven by dual supramolecular interactions”, *J. Am. Chem. Soc.* **2016**, *138* (6), 1932–1937.
48. A. P. H. Gelissen, A. Oppermann, T. Caumanns, P. Hebbeker, S. K. Turnhoff, R. Tiwari, S. Eisold, U. Simon, Y. Lu, J. Mayer, W. Richtering, A. Walther, D. Wöll, “3D structures of responsive nano compartmentalized microgels”, *Nano Lett.* **2016**, *16*, 7295–7301.
49. G. Yang, Z. Kochovski, Z. Ji, Y. Lu, G. Chen, M. Jiang, “Three-dimensional protein assembly directed by orthogonal non-covalent interactions”, *Chem. Comm.* **2016**, *52*, 9687-9690.

----- **2015** -----

50. H. Jia, D. Schmitz, A. Ott, A. Pich, Y. Lu*, “Cyclodextrin Modified Microgels as “Nanoreactor” for the Generation of Au Nanoparticles with Enhanced Catalytic Activity”, *J. Mater. Chem. A* **2015**, *3*, 6187-6195.
51. S. Mei, J. Cao, Y. Lu*, “Controllable assembly of two types of metal nanoparticles onto block copolymer nanospheres with ordered spatial distribution”, *J. Mater. Chem. A* **2015**, *3*, 3382 - 3389.
52. J. Cao, S. Mei, A. Ott, J. He, M. Ballauff, Y. Lu*, “In Situ Synthesis of Catalytic Active Au Nanoparticles onto Gibbsite–Polydopamine Core–Shell Nanoplates”, *Langmuir* **2015**, *31* (34), 9483–9491.
53. N. P. B. Tan, H. Lee, L. Chen, K. Ho, Y. Lu*, M. Ballauff, P. Li, “Facile synthesis of gold/polymer nanocomposite particles using polymeric amine-based particles as dual reductants and templates”, *Polymer* **2015**, *76*, 271-279.
54. S. Angioletti-Uberti, Y. Lu, M. Ballauff, J. Dzubiella, “Theory of Solvation-Controlled Reactions in Stimuli-Responsive Nanoreactors”, *J. Phys. Chem. C* **2015**, *119* (27), 15723–15730.
55. S. Gu, Y. Lu, J. Kaiser, M. Albrecht, M. Ballauff, “Kinetic analysis of the reduction of 4-nitrophenol catalyzed by Au/Pd nanoalloys immobilized in spherical polyelectrolyte brushes”, *Phys. Chem. Chem. Phys.* **2015**, *17*, 28137-28143.
56. F. Chu, N. Heptner, Y. Lu, M. Siebenbuerger, P. Lindner, J. Dzubiella, M. Ballauff, “Colloidal Plastic Crystals in a Shear Field”, *Langmuir* **2015**, *31*, 5992–6000.
57. N. Heptner, F. Chu, Y. Lu, P. Lindner, M. Ballauff, J. Dzubiella, “Nonequilibrium structure of colloidal dumbbells under oscillatory shear”, *Phys. Rev. E* **2015**, DOI: 10.1103/PhysRevE.00.002300.
58. K. Henzler, A. Heilemann, J. Kneer, P. Guttman, H. Jia, E. Bartsch, Y. Lu, S. Palzer, “Investigation of reactions between trace gases and functional CuO

nanospheres and octahedrons using NEXAFS - TXM imaging", *Sci. Rep.* **2015**, 5, 17729.

59. S. Gu, J. Kaiser, G. Marzun, A. Ott, Y. Lu, M. Ballauff, A. Zaccone, S. Barcikowski, P. Wagener, "Ligand-free Gold Nanoparticles as a Reference Material for Kinetic Modelling of Catalytic Reduction of 4-Nitrophenol", *Cata. Lett.* **2015**, 145, 1105-1112.

----- **2014** -----

60. A. Ott, S. Ring, G. Yin, W. Calvet, B. Stannowski, Y. Lu*, R. Schlatmann, M. Ballauff, "Efficient Plasmonic Scattering of Colloidal Silver Particles Through Annealing-Induced Changes", *Nanotechnology* **2014**, 25(45): 455706.
61. F. Chu, F. Polzer, N. Severin, Y. Lu*, A. Ott, J. P. Rabe, M. Ballauff, "Thermosensitive Hollow Janus Dumbbells", *Colloid Polym. Sci.* **2014**, 292, 1785-1793.
62. S. Gu, S. Wunder, Y. Lu, M. Ballauff, R. Fenger, K. Rademann, B. Jaquet, A. Zaccone, "Kinetic Analysis of the Catalytic Reduction of 4-Nitrophenol by Metallic Nanoparticles", *J. Phys. Chem. C* **2014**, 118, 18618–18625.
63. L. Su, C. Wang, F. Polzer, Y. Lu, G. Chen, M. Jiang, "Glyco-Inside Micelles and Vesicles directed by Protection-Deprotection Chemistry", *ACS Macro Letters* **2014**, 3, 534–539.
64. H. Arslan, A. Pfaff, Y. Lu, P. Stepanek, A. H. E. Müller, "Stimuli-Responsive Spherical Brushes Based on D-Galactopyranose and 2-(Dimethylamino)ethyl Methacrylate", *Macromol. Bioscience* **2014**, 14, 81-91.
65. Y. Lu*, N. Welsch, J. Dzubiella, M. Ballauff, "Core-shell microgels as nanoreactors", *Progr. Colloid Polym. Sci.* **2013**, 140, 113-130.

----- **2013** -----

66. S. Wu, J. Kaiser, M. Drechsler, M. Ballauff, Y. Lu*, "Thermosensitive Au-PNIPA yolk-shell particles as nanoreactors with tunable optical properties", *Colloid Polym. Sci.* **2013**, 291, 231-237.
67. S. Wu, A. W. Schell, M. Lublow, J. Kaiser, T. Aichele, S. Schietinger, F. Polzer, S. Kühn, X. Guo, O. Benson, M. Ballauff, Y. Lu*, "Silica coated Au/Ag Nanorods with Tunable Surface Plasmon Bands for Nanoplasmonics with Single Particles", *Colloid Polym. Sci.* **2013**, 291, 585-594.
68. K. Henzler, P. Guttmann, Y. Lu, F. Polzer, G. Schneider, M. Ballauff, "Electronic Structure of Individual Hybrid Colloid Particles Studied by Near-Edge X-ray

Absorption Fine Structure (NEXAFS) Spectroscopy in the X-ray Microscope”, *Nano Lett.* **2013**, 13, 824-828.

69. N. Welsch, Y. Lu, J. Dzubiella, M. Ballauff, „Adsorption of proteins to functional polymeric nanoparticles“, *Polymer (invited review article)* **2013**, 54:2835-2849.
70. J. Kaiser, W. Szczerba, H. Riesemeier, U. Reinholz, M. Radtke, M. Albrecht, Y. Lu, M. Ballauff, “The Structure of AuPd Nanoalloys Anchored on Spherical Polyelectrolyte Brushes Determined by X-ray Absorption Spectroscopy”, *Faraday Discuss.* **2013**, 162:45-55.

----- **2012** -----

71. S. Wu, J. Dzubiella, J. Kaiser, M. Drechsler, X. Guo, M. Ballauff, Y. Lu,* “Thermosensitive Au-PNIPA Yolk-Shell Nanoparticles with Tunable Selectivity for Catalysis”, *Angew. Chem. Int. Ed.* **2012**, 51 (9), 2229-2233.
72. P. Hervés, M. Pérez-Lorenzo, L.M. Liz-Marzán, J. Dzubiella, Y. Lu, M. Ballauff, “Catalysis by metallic nanoparticles in aqueous solution: Model reactions”, *Chem. Soc. Rev. (invited review article)* **2012**, 41 (17), 5577 - 5587.
73. J. Yuan, S. Wunder, F. Warmuth, Y. Lu,* “Spherical Polymer Brushes with Vinylimidazolium-type Poly(ionic liquid) Chains as Support for Metallic Nanoparticles”, *Polymer* **2012**, 53, 43-49.
74. J. Kaiser, L. Leppert, H. Welz, F. Polzer, S. Wunder, N. Wanderka, M. Albrecht, T. Lunkenbein, J. Breu, S. Kümmel, Y. Lu,* M. Ballauff, „Catalytic Activity of Nanoalloys from Gold and Palladium“, *Phys. Chem. Chem. Phys.* **2012**, 14, 6487-8495.
75. M. Lublow, Y. Lu, S. Wu, “Brewster-Angle Variable Polarization Spectroscopy of Colloidal Au-Nanospheres and -Nanorods at the Silicon Surface”, *J. Phys. Chem. C* **2012**, 116, 8079-8088.
76. B. Dai, F. Polzer, I. Häusler, Y. Lu*, “Au-TiO₂ yolk-shell particles for photocatalysis application”, *Z. Phys. Chem.* **2012**, 226, 827-835.
77. F. Polzer, S. Wunder, Y. Lu, M. Ballauff, “Oxidation of an Organic Dye Catalyzed by MnOx Nanoparticles”, *J. Catal.* **2012**, 289, 80-87.
78. F. Chu, M. Siebenbürger, F. Polzer, C. Stolze, J. Kaiser, M. Hoffmann, N. Heptner, J. Dzubiella, M. Drechsler, Y. Lu, M. Ballauff, “Synthesis and Characterization of Monodisperse Thermosensitive Dumbbell-Shaped Microgels”, *Macromol. Rapid Commun.* **2012**, 33, 1042.
79. S. Wu, J. Kaiser, X. Guo, L. Li, Y. Lu,* M. Ballauff, “Recoverable Platinum Nanocatalysts Immobilized on Magnetic Spherical Polyelectrolyte Brushes”, *Industrial & Engineering Chemistry Research* **2012**, 51, 5608-5614.

----- 2011 -----

80. Y. Lu, M. Ballauff, “Thermosensitive Core-Shell Microgels: From Colloidal Model Systems to Nanoreactors”, *Prog. Polym. Sci. (invited review article)* **2011**, 36, 767-792.
81. S. Wunder, Y. Lu, M. Albrecht, M. Ballauff, “Catalytic activity of faceted gold nanoparticles studied by a model reaction: Evidence for substrate-induced surface restructuring”, *ACS Catalysis* **2011**, 1, 908-916.
82. A. Pfaff, V. Shinde, Y. Lu, A. Wittemann, M. Ballauff, A. H. E. Müller, “Glycopolymer Grafted Polystyrene Nanospheres”, *Macromol. Bio.* **2011**, 11, 199-210.
83. J. Yuan, N. ten Brummelhuis, M. Junginger, Z. Xie, Y. Lu, A. Taubert, H. Schlaad, “Diversified Application of Chemically Modified 1,2-Polybutadiene”, *Macromol. Rapid Commun.* **2011**, 32, 1157-1162.
84. K. Chen, Y. Zhu, Y. Zhang, L. Li, Y. Lu, X. Guo, “Synthesis of Magnetic Spherical Polyelectrolyte Brushes”, *Macromolecules* **2011**, 44, 632-639.
85. X. Wang, S. Wu, L. Li, R. Zhang, Y. Zhu, M. Ballauff, Y. Lu, X. Guo, “Synthesis of Spherical Polyelectrolyte Brushes by Photoemulsion Polymerization with Different Photoinitiators”, *Industrial & Engineering Chemistry Research* **2011**, 50, 3564-3569.

----- 2006 - 2010 -----

86. Y. Lu,* J. Yuan, F. Polzer, M. Drechsler, J. Preussner, “In-situ Growth of Catalytic Active Au-Pt Bimetallic Nanorods in Thermo-Responsive Core-Shell Microgels”, *ACS Nano* **2010**, 4, 7078-7086.
87. N. Welsch, M. Ballauff, Y. Lu,* “Microgels as nanoreactors: applications in catalysis”, *Adv. Polym. Sci. (invited review article)* **2010**, 234, 129-163.
88. Y. Lu,* T. Lunkenbein, J. Preussner, S. Proch, J. Breu, R. Kempe, M. Ballauff, “Composites of Metal Nanoparticles and TiO₂ immobilized in Spherical Polyelectrolyte Brushes”, *Langmuir* **2010**, 26 (6), 4176-4183.
89. J. Brendel, Y. Lu, M. Thelakkat, “Polymer templated nanocrystalline titania network for solid state dye sensitized solar cells”, *J. Mater. Chem.* **2010**, 20, 7255-7265.
90. S. Wunder, F. Polzer, Y. Lu, M. Yu, M. Ballauff, “Kinetic Analysis of Catalytic Reduction of 4-Nitrophenol by Metallic Nanoparticles immobilized in Spherical Polyelectrolyte Brushes”, *J. Phys. Chem. C* **2010**, 114 (19), 8814-8820.

91. J. Yuan, F. Schacher, M. Drechsler, A. Hanisch, Y. Lu, M. Ballauff, A. Mueller, "Stimuli-Responsive Organo-Silica Hybrid Nanowires Decorated with Metal Nanoparticles", *Chem. Mater.* **2010**, 22, 2626-2634.
92. M. Hoffmann, M. Siebenbürger, L. Harnau, M. Hund, C. Hanske, Y. Lu, C. S. Wagner, M. Drechsler, M. Ballauff, "Thermoresponsive colloidal molecules", *Soft Matter* **2010**, 6, 1125–1128.
93. X. Wang, J. Xu, S. Wu, Q. Chen, L. Li, S. Huang, Y. Lu, M. Ballauff, X. Guo, "Synthesis of spherical polyelectrolyte brushes by thermo-controlled emulsion polymerization", *Macro. Rapid Comm.* **2010**, 31, 1272-1275.
94. K. Chen, Y. Zhu, L. Li, Y. Lu, X. Guo, "Recyclable Spherical Polyelectrolyte Brushes Containing Magnetic Nanoparticles in Core", *Macromol. Rapid Commun.* **2010**, 31, 1440-1443.
95. Y. Lu,* M. Drechsler, "Charge-induced Self-Assembly of 2-Dimensional Thermosensitive Microgel Particle Patterns", *Langmuir* **2009**, 25, 13100-13105.
96. Y. Lu, A. Wittemann, M. Ballauff, "Supramolecular Structures generated by Spherical Polyelectrolyte Brushes and Their Application in Catalysis", *Macromol. Rapid. Commun. (invited review article)* **2009**, 30, 806-815.
97. Y. Lu,* S. Proch, M. Schrunner, M. Drechsler, R. Kempe, M. Ballauff, "Thermosensitive Core-Shell Microgel as a "Nanoreactor" for Catalytic Active Metal Nanoparticles", *J. Mater. Chem.* **2009**, 19, 3955 - 3961.
98. R. Sai Yelamanchili, Y. Lu,* T. Lunkenbein, N. Miyajima, L. Yan, M. Ballauff, J. Breu, "Shaping colloidal rutile into thermally stable and porous mesoscopic titania-balls", *Small* **2009**, 5, 1326-1333.
99. Y. Lu,* M. Hoffmann, R. Sai Yelamanchili, A. Terrenoire, M. Schrunner, M. Drechsler, M. Möller, J. Breu, M. Ballauff, "Well-defined Crystalline TiO₂ Nanoparticles Generated and Immobilized on a Colloidal Nanoreactor", *Macro. Chem. Phys.* **2009**, 210, 377–386.
100. J. Yuan, Y. Lu, F. Schacher, T. Lunkenbei, S. Weiss, H. Schamlz, A. Müller, „Template-directed Synthesis of Titania Hybrid Nanowires within Bishydrophilic Core-Shell Cylindrical Polymer Brushes“, *Chem. Mater.* **2009**, 21, 4146–4154.
101. M. Karg, Y. Lu, E. Carbo-Argibay, I. Pastoriza-Santos, J. Perez-Juste, L. M. Liz-Marzan, T. Hellweg, "Multiresponsive Hybrid Colloids Based on Gold Nanorods and Poly(NIPAM-co-allylactic acid) Microgels: Temperature- and pH-Tunable Plasmon Resonance", *Langmuir* **2009**, 25, 3163–3167.
102. X. Zhang, Y. Wang, W. Wang, S. Bolisetty, Y. Lu, M. Ballauff, "Salt-Induced Aggregation of Polyelectrolyte–Amphiphilic Dendron Complexes in THF Solutions", *Langmuir* **2009**, 25, 2075-2080.
103. Y. Lu, A. Pich, H.-J. P. Adler, G. Wang, D. Rais, S. Nespurek, "Composite

- polypyrrole-containing particles and electrical properties of thin films prepared therefrom”, *Polymer* **2008**, 49, 5002-5012.
104. S. Wagner, Y. Lu, A. Wittemann, “Preparation of Submicron-sized Clusters from Polymer Spheres using Ultrasonication”, *Langmuir* **2008**, 24, 12126-12128.
 105. M. Hoffmann, Y. Lu, M. Schrunner, M. Ballauff, L. Harnau, “Dumbbell-Shaped Polyelectrolyte Brushes Studied by Depolarized Dynamic Light Scattering”, *J. Phys. Chem. B* **2008**, 112, 14843.
 106. S. Oberoi, Y. Lu, G. Busch, E. Jaehne, A. Pich, H.J.P. Adler, “Novel modified pyrrole monomers, 2: Behaviour in water solutions”, *Designed Monomers and Polymers* **2008**, 11, 69-82.
 107. J. Hain, M. Schrunner, Y. Lu, A. Pich, “Design of Multicomponent Microgels by Selective Deposition of Nanomaterials”, *Small* **2008**, 4, 11, 2016–2024.
 108. S. Proch, Y. Mei, J. M. Rivera Villanueva, Y. Lu, A. Karpov, M. Ballauff, and R. Kempe, “Suzuki- and Heck-Type Cross-Coupling with Palladium Nanoparticles Immobilized on Spherical Polyelectrolyte Brushes”, *Adv. Synth. Catal.* **2008**, 350, 493-500.
 109. Y. B. Malysheva, A. V. Gushchin, Y. Mei, Y. Lu, M. Ballauff, S. Proch, R. Kempe, “C-C coupling reaction of triphenylbismuth(V) derivatives and olefins in the presence of palladium nanoparticles immobilized in spherical polyelectrolyte brushes”, *Eur. J. Inorg. Chem.*, **2008**, 3, 379-383.
 110. Y. Lu,* Y. Mei, M. Schrunner, M. Ballauff, M. W. Mölle, J. Breu, “In-situ Formation of Ag Nanoparticles in Spherical Polyacrylic Acid Brushes by UV Irradiation”, *J. Phys. Chem. C* **2007**, 111, 7676.
 111. M. Ballauff, Y. Lu,* ““Smart” Nanoparticles: Preparation, Characterization and Applications”, *Polymer (invited Feature Article)* **2007**, 48:1815-1823.
 112. Y. Lu,* P. Spyra, Y. Mei, M. Ballauff, A. Pich, “Composite Hydrogels: Robust Carriers for Catalytic Nanoparticles”, *Macromol. Chem. Phys.* **2007**, 208, 254-261.
 113. Y. Mei, Y. Lu, F. Polzer, M. Ballauff, M. Drechsler, “Catalytic Activity of Palladium Nanoparticles Encapsulated in Spherical Polyelectrolyte Brushes and Core-Shell-Microgels”, *Chem. Mater.* **2007**, 19, 1062-1069.
 114. G. Sharma, Y. Mei, Y. Lu, M. Ballauff, T. Irrgang, R. Kempe, “Spherical Polyelectrolyte Brushes as Carriers for Platinum Nanoparticles in Heterogeneous Hydrogenation Reactions”, *J. Catalysis*, **2007**, 246(1): 10-14.
 115. M. Schrunner, F. Polzer, Y. Mei, Y. Lu, B. Haupt, M. Ballauff, A. Goedel, M. Drechsler, J. Preussner, U. Glatzel, “Mechanism of the Formation of Amorphous Gold Nanoparticles within Spherical Polyelectrolyte Brushes”, *Macromol. Chem. Phys.* **2007**, 208, 1542.
 116. Y. Lu,* M. Yu, M. Drechsler, M. Ballauff, “Ag nanocomposite particles:

- preparation, characterization and application”, *Macromol. Symp.* **2007**, 254: 94-102.
117. M. Yu, Y. Lu, M. Schrunner, F. Polzer, M. Ballauff, „Spherical polyelectrolyte brushes as carriers for catalytically active metal nanoparticles“, *Macromol. Symp.* **2007**, 254: 42-45.
118. Y. Lu,* A. Wittemann, M. Ballauff, M. Drechsler, “Preparation of poly(styrene)-poly(N-isopropylacrylamide) (PS-PNIPA) core-shell particles by photoemulsion polymerization”, *Macromol. Rapid. Commun.* **2006**, 27: 1137-1141.
119. Y. Lu,* Y. Mei, R. Walker, M. Ballauff, M. Drechsler, “‘Nano-tree’—type spherical polymer brush particles as templates for metallic nanoparticles”, *Polymer* **2006**, 47: 4985-4995.
120. Y. Lu,* Y. Mei, M. Ballauff, M. Drechsler, “Thermosensitive colloid particles as carrier systems for metallic nanoparticles”, *J. Phys. Chem. B* **2006**, 110: 3930-3937.
121. Y. Lu, Y. Mei, M. Ballauff, M. Drechsler, “Thermosensitive Core-Shell Particles as Carriers for Ag Nanoparticles: Modulating the Catalytic Activity by a Phase Transition in Networks”, *Angew. Chem. Int. Ed. Engl.* **2006**, 45: 813-816.
122. A. Pich, Y. Lu, H.-J. P. Adler, “Polymeric particles with conjugated polymer: Layer on its surface as effective adsorbents of amino acids”, *Polymer* **2006**, 47: 6536-6543.
123. A. Pich, A. Karak, Y. Lu, V. Boyko, H.-J. P. Adler, “Preparation of Hybrid Microgels Functionalized by Silver Nanoparticles”, *Macromol. Rapid Commun.* **2006**, 27, 344-350.
124. A. Pich, A. Karak, Y. Lu, A. K. Ghosh, H.-J. P. Adler, “Tuneable catalytic properties of hybrid microgels containing gold nanoparticles”, *Journal of Nanoscience and Nanotechnology* **2006**, 6(12), 3763-3769.
125. A. Pich, A. Tessier, V. Boyko, Y. Lu, H.-J. Adler, “Synthesis and characterization of poly(vinylcaprolactam)-based microgels exhibiting temperature and pH-sensitive properties”, *Macromolecules* **2006**, 39(22):7701-7707.
126. A. Pich, A. Karak, Y. Lu, A. K. Ghosh, H.-J. P. Adler, “Hybrid microgels containing gold nanoparticles”, *e-Polymers* **2006**, no 018.

----- 2001 - 2005 -----

127. Y. Mei, G. Sharma, Y. Lu, M. Ballauff, M. Drechsler, T. Irrgang, R. Kempe, “High Catalytic Activity of Platinum Nanoparticles Immobilized on Spherical

- Polyelectrolyte Brushes”, *Langmuir* **2005**, 21: 12229-12234.
128. A. Pich, J. Hain, Y. Lu, V. Boyko, Y. Prots, H.-J. Adler, “Hybrid Microgels with ZnS Inclusions.” *Macromolecules* **2005**, 38(15): 6610-6619.
 129. G. Paliwoda-Porebska, M. Stratmann, M. Rohwerder, K. Potje-Kamloth, Y. Lu, A. Pich, H.-J. Adler, “On the development of polypyrrole coatings with self-healing properties for iron corrosion protection”, *Corrosion Science* **2005**, 47, 3216-3233.
 130. Y. Lu, A. Pich, H.-J. P. Adler, “Synthesis and Characterization of Polypyrrole Dispersions Prepared with Different Dopants”, *Macromol. Symp.* **2004**: 411-416.
 131. A. Pich, S. Bhattacharya, Y. Lu, V. Boyko, H.-J. P. Adler, “Temperature - Sensitive Hybrid Microgels with Magnetic Properties”, *Langmuir* **2004**, 20(24): 10706-10711.
 132. A. Pich, Y. Lu, V. Boyko, K.-F. Arndt, H.-J. Adler, “Thermo-sensitive poly(N-vinylcaprolactam-co-acetoacetoxyethyl methacrylate) microgels: III. Incorporation of polypyrrole by selective microgel swelling in ethanol-water mixtures”, *Polymer* **2004**, 45/4: 1079-1087.
 133. Y. Lu, A. Pich, H.-J. P. Adler, “Synthesis and Characterization of Nanometer-sized Polypyrrole Composites”, *Synthetic Metals* **2003**, 135-136: 37-38.
 134. A. Pich, Y. Lu, V. Boyko, K.-F. Arndt, H.-J. Adler, “Thermo-sensitive poly(N-vinylcaprolactam-co-acetoacetoxyethyl methacrylate) microgels: II. Incorporation of polypyrrole”, *Polymer* **2003**, 44/25: 7651-7659.
 135. V. Boyko, A. Pich, Y. Lu, S. Richter, K.-F. Arndt, H.-J. Adler, “Thermo-sensitive poly(N-vinylcaprolactam-co-acetoacetoxyethyl methacrylate) microgels: I. Synthesis and Characterization”, *Polymer* **2003**, 44/25: 7821-7827.
 136. A. Pich, V. Boyko, Y. Lu, S. Richter, H.-J. Adler, K.-F. Arndt, “Preparation of PEGMA-functionalized Latex Particles: 2-System styrene/N-vinylcaprolactam”, *Colloid Polym. Sci.* **2003**, 281: 916-920.
 137. A. Pich, Y. Lu, H.-J. Adler, “Preparation of PEGMA-functionalized Latex Particles: 1-System styrene/PEGMA”, *Colloid Polym. Sci.* **2003**, 281: 907-915.
 138. V. Boyko, Y. Lu, A. Richter, A. Pich, “Preparation and Characterization of Acetoacetoxyethyl Methacrylate-Based Gels”, *Macromol. Chem. Phys.* **2003**, 204: 2031-2039.
 139. H.-J. Adler, E. Jähne, A. Henke, Y. Lu, A. Pich, “Reactive Dispersions for Corrosion Inhibition”, *Macromol. Symp.* **2002**, 187: 53.
 140. A. Pich, Y. Lu, H.-J. P. Adler, T. Schmidt, K.-F. Arndt, “Dispersion polymerization of pyrrole in presence of poly (vinyl methyl ether) microgels”, *Polymer* **2002**, 43: 5723-5728.
 141. M. Zhu, W. Yan, Y. Lu, P. Pötschke, J. Pionteck, “Study on Polypropylene

(PP)-based Blending System with Reactive Polymer”, *Macromol. Symp.* **2001**: 164-168.

Book chapters:

1. Hybrid Nanomaterials: Synthesis, Characterization, and Applications, ed. by B.P.S. Chauhan, published by John Wiley & Sons, Hoboken, New Jersey, **2011**.
Yan Lu, Matthias Ballauff, Chapter 1: Hybrids from Polymer Colloids and Metallic Nanoparticles: A Novel Type of “Green” Catalyst.
2. Hydrogel Micro and Nanoparticles, 1st Edition, ed. by L. A. Lyon and M. J. Serpe, published by Wiley-VCH Verlag GmbH & Co. KGaA **2012**.
Yan Lu, Matthias Ballauff, Chapter 2: Thermosensitive Core–Shell Microgels: Basic Concepts and Applications.
3. Polymer Science: A Comprehensive Reference, ed. By K. Matyjaszewski and M. Möller, published by Amsterdam: Elsevier BV.
Yan Lu, Matthias Ballauff, Alexander Wittemann, 6.07 Spherical Polymer Brushes. Vol 6, pp. 265–292.

Patents:

1. A. Karpov, H. Hibt, A. Terrenoire, A. Weiss, M. Ballauff, Y. Mei, Y. Lu, R. Kempe, S. Proch, J. Villanueva, Technique of cross-coupling reactions with metallic nanoparticles as catalyst, WO 2008/074702 A1.
2. V. Bette, R. Balk, A. Terrenoire, H. Wiese, E. Jahns, M. Ballauff, Y. Lu, M. Hoffmann, Titanium dioxide composition comprising titanium dioxide nanoparticles, and preparation and use thereof, WO 2009/147126.