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- [36] L. Su, S. Hu, L. Zhang and Z. Wang, “A Fast and Efficient Replacement of CTAB with MUA on the surface of Gold Nanorods Assisted by a water-Immiscible Liquid.,” *Advanced Science NEWS (SMALL)*, pp. 1-9, 2017.
- [37] M. G. Guzman, J. Dille and S. Godet, “Synthesis of silver nanoparticles by chemical,” *World Academy of Science, Engineering and Technology*, vol. 19, pp. 1-8, 2008.
- [38] D. Vollath, “Chapter 2: Nanomaterials and Nanocomposites,” in *Nanomaterials: An introduction to synthesis, properties, and applications*, Wiley-VCH: Verlag GmbH & Co.KGaA, 2013, p. 7.
- [39] D. C. Agrawal, “Chatper 7: Zero Dimensional nanostructures IV colloids and colloidal crystals,” in *Introduction to nanoscience and nanomaterials*, Singapore, World Scientific, 2013, p. 204.
- [40] M. Sastry, “Assembling nanoparticles and biomacromolecules using electrostatic interactions,” *The journal of Pure and Applied Chemistry*, vol. 74, no. 9, pp. 1621-1630, 2002.
- [41] D. Vollath, “Bifunctional Nanocomposites with Magnetic and Luminescence properties,” *Advanced Materials*, vol. 22, pp. 4410-4415, 2010.
- [42] W. Zhou, Y. Liu, Y. Yang and P. Wu, “Band gap engineering of SnO<sub>2</sub> by Epitaxial Stain: Experimental and Theoretical investigations,” *The journal of Physical Chemistry*, vol. 12, no. 118, pp. 6448-6453, 2014.
- [43] N. Zhou, L. Polavarapu, Q. Wong and Q.-H. Xu, “Mesoporous SnO<sub>2</sub>-coated metal Nanoparticles with Enhanced Catalytic Efficiency,” *ACS: Applied Materials and Interfaces*, vol. 7, p. 4844–4850, 2015.
- [44] S. Ho Lee, I. Rusakova, D. Hoffman, A. Jacobson and R. Lee, “Monodisperse SnO<sub>2</sub>-coated Gold Nanoparticles Are Markedly more stable

- than analogous SiO<sub>2</sub>-coated gold nanoparticles.,” *ACS: Applied Materials and Interfaces*, vol. 5, pp. 2479-2484, 2013.
- [45] S. U. Choi and J. A. Eastman, “Enhanced heat transfer using nanofluids”. United States of America Patent US6221275B1, 2001.
- [46] S. U. Choi and J. A. Eastman, “Enhancing thermal conductivity of fluids with nanoparticles, developments and applications of non-newtonian flows.,” *The American Society of Mechanical Engineers*, vol. 66, no. 231, pp. 99-105, 1995.
- [47] M.-S. Lui, M. C.-C. Lin, I.-T. Huang and C.-C. Wang, “Enhancement of thermal conductivity with carbon nanotube for nanofluids,” *International Communications in Heat and Mass Transfer*, vol. 32, no. 9, pp. 1202-1210, 2005.
- [48] R. McGlynn, S. Chakrabarti, B. Alessi, H. Moghaieb, P. Maguire, H. Singh and D. Mariotti, “Plasma-induced non-equilibrium electrochemistry synthesis of nanoparticles,” *Elsevier: Solar Energy*, vol. 203, pp. 37-45, 2020.
- [49] S. H. Lee, I. Rusakova and D. M. Hoffman, “Monodisperse SnO<sub>2</sub>-Coated Gold Nanoparticles Are Markedly More Stable than Analogous SiO<sub>2</sub>-Coated Gold Nanoparticles,” *ACS: Applied materials and interfaces*, vol. 5, p. 2479–2484, 2013.
- [50] P. Kebblinski, S. R. Phillipot, S. U. Choi and J. A. Eastman, “Mechanisms of Heat Flow in Suspensions of Nano-Sized Particles (Nanofluids),” *Journal of Heat and Mass Transfer*, vol. 45, no. 4, pp. 855-863, 2002.
- [51] D. A. Siginer, D. De Kee and R. P. Chhabra, Advances in the flow and rheology of non-newtonian fluids, Elsevier, 1999.
- [52] Y. Xuan and Q. Li, “Heat transfer enhancement of nanofluids,” *Journal of Heat and Fluid Flow*, vol. 21, no. 1, pp. 58-64, 2000.
- [53] Y. Xuan and W. Roetzel, “Conceptions for heat transfer correlation of nanofluids,” *Jornal of Heat and Mass transfer*, vol. 43, no. 19, pp. 3701-3707, 2000.

- [54] T. Visinee and W. Somchai, “Critical review of heat transfer characteristics of nanofluids,” *Renewable and Sustainable Energy Review*, vol. 11, no. 3, pp. 512-523, 2007.
- [55] P. W. Atkins, *Physical Chemistry*, Oxford: Oxford University Press, 1994, pp. 922-926.
- [56] Y. Huang, R. A. Ferhan, Y. Gao, A. Dandapat and D.-H. Kim, “High-yield synthesis of triangular gold nanoplates with improved shape uniformity, tunable edge length and thickness,” *The Royal Society of Chemistry*, vol. 6, no. 6496, pp. 1-3, 2014.
- [57] H. S. Carslaw and J. C. Jaeger, *Conduction of Heat in solids*, 2nd ed., Oxford: Oxford University Press, 1959.
- [58] S. Alvarado, E. Marin, A. G. Juarez, A. Calderon and R. Ivanov, “A hot-wire method based thermal conductivity measurement apparatus for teaching purposes,” *European journal of Physics*, vol. 33, pp. 897-906, 2012.
- [59] C. J. Orendorff and C. J. Murphy, “Quantitation of Metal Content in the Silver-Assisted Growth of Gold Nanorods,” *The journal of Physical Chemistry*, vol. 110, pp. 3990-3994, 2006.
- [60] H. M. Song , B. S. Chon, . S. H. Jeon and P. K. Dutta, “Synthesis of Au@SnO<sub>2</sub> coreeshell nanoparticles with controllable shell thickness and their CO sensing properties,” *Elsevier: Materials Chemistry and Physics*, vol. 166, pp. 87-94, 2015.
- [61] “Thermal Conductivity of Ethylene Glycol-Water Mixtures,” Thermtest, 13 August 2018. [Online]. Available: <https://thermtest.com/thermal-conductivity-ethylene-glycol-water-mixtures>. [Accessed 25 01 2023].
- [62] T. W. Kim and D. U. Lee, “Microstructural, electrical, and optical properties of SnO<sub>2</sub> nanocrystalline thin films grown on InP (100) substrates for applications as gas sensor devices,” *Journal of Applied Physics*, vol. 88, p. 3759, 2000.

- [63] A. B. Korczyc, E. Mackiewicz,, K. R. Soliwoda, J. Grobelny and G. Celichowsk, “Facile synthesis of SnO<sub>2</sub> shell followed by microwave treatment for high environmental stability of Ag nanoparticles,” *The Royal Society of Chemistry*, vol. 10, pp. 38424-38436, 2020.
- [64] A. Mohammadnia, A. Rezania, B. M. Ziaour, F. Sedaghati and L. Rosendahl, “Hybrid energy harvesting to maximize power generation from solar energy,” *Energy Conservation Management*, vol. 112352, p. 205, 2020.
- [65] K. Myeongju and K. Younghun, “Au-coated Fe<sub>3</sub>O<sub>4</sub>@SiO<sub>2</sub> core-shell particles with photothermal activity,” *Elsevier*, vol. 600, no. 124957, pp. 1-7, 2020.
- [66] G. Oldfield, T. Ung and P. Mulvaney, “Au@SnO<sub>2</sub> core-shell nanocapacitors,” *Advanced AMterials*, vol. 12, no. 20, pp. 1519-1522, 2000.
- [67] M. Sun, G. Ran, Q. Fu and W. Xu, “The effect of Iodide on the synthesis of gold nanoprisms,” *Journal of Experimental Nanoscience*, vol. 10, no. 17, pp. 1309-1318, 2015.
- [68] N. Yuan, K. Cixia, G. Qi, W. Jingjing, X. Haiying and W. Changshun, “Localised heat generation and stability of a plasmonic material,” *Journal of Physics D: Applied Physics*, vol. 49, no. 055302, pp. 1-10, 2015.
- [69] N. Yuan, K. Caixia, G. Qi, W. Jingjing, X. Haiying and W. Changshun, “Heat generation and stability of a plasmonic,” *Journal of Physics D: Applied Physics*, vol. 49, no. 055302, pp. 1-10, 2015.
- [70] D. G. Chukhchin, A. V. Malkov, I. V. Tyshkunova, L. V. Mayer and E. V. Novozhilov, “Diffractometric method for determining the degree of crystallinity of materials,” *Diffraction and Scattering of Ionizing Radiation*, vol. 61, no. 3, pp. 371-375, 2015.
- [71] P. M. Tiwari, K. Vig, V. A. Dennis and S. R. Singh, “Functionalized Gold Nanoparticles and Their Biomedical Applications,” *Nanometerials*, vol. 1, no. 1, pp. 31-63, 2011.

- [72] Z. P. Xu, Q. H. Zeng, G. Q. Lu and A. B. Yu, "Inorganic nanoparticles as carriers for efficient cellular delivery," *Elsevier: Chemical Engineering Science*, vol. 61, no. 3, pp. 1027-1040, 2006.
- [73] S. Tedesco, H. Doyle, J. Blasco, G. Redmond and D. Sheehan, "Oxidative stress and toxicity of gold nanoparticles in *Mytilus edulis*," *Elsevier: Aquatic Toxicology*, vol. 100, no. 2, pp. 178-186, 2010.
- [74] J. H. Youk, "Preparation of gold nanoparticles on poly(methyl methacrylate) nanospheres with surface-grafted poly(allylamine)," *Elsevier: Polymer*, vol. 44, no. 18, pp. 5053-5056, 2003.
- [75] C.-W. Chen, M.-Q. Chen, T. Serizawa and M. Akashi, "In-Situ Formation of Silver Nanoparticles on Poly(N-isopropylacrylamide)-Coated Polystyrene Microspheres," *Advanced Materials*, vol. 10, no. 14, pp. 1122-1126, 1999.
- [76] Q. Kong, X. Chen, J. Yao and D. Xue, "Preparation of poly(N-vinyl-2-pyrrolidone)-stabilized transition metal (Fe, Co, Ni and Cu) hexacyanoferrate nanoparticles," *Nanotechnology*, vol. 16, p. 164, 2004.
- [77] S. Tang and J. Zheng, "Antibacterial Activity of Silver Nanoparticles: Structural Effects," *Advanced Healthcare Materials*, vol. 7, no. 13, 2018.
- [78] H. M. Fahmy, A. M. Mosleh, A. A. Elghany, E. Shams-Eldin, E. S. Serea and A. E. Shalan, "Coated silver nanoparticles: synthesis, cytotoxicity, and optical properties," *Royal Society of Chemistry*, no. 35, 2019.
- [79] D. Vollath, "Chapter 3: Surfaces in Nanomaterials," in *Nanomaterials: An introduction to synthesis, properties, and applications*, Wiley-VCH, 2013, p. 23.
- [80] J. M. Thomas, P. A. Midgley and C. Ducati, "Nanoscale electron tomography and atomic scale high-resolution electron microscopy of nanoparticles and nanoclusters: A short survey," *Progress in Natural Science*, vol. 23, no. 3, pp. 222-234, 2013.
- [81] B. Wunderlich, *Macromolecular Physics*, New York: Academic Press New York, 1976.

- [82] A. W. Adamson and A. P. Gast, Physical Chemistry of surfaces, New York: Wiley-interscience publication, 1997.
- [83] G. Mie, “Contributions to the optics of turbid media, particularly of colloidal metal solutions,” *Annalen der Physik*, vol. 3, pp. 377-445, 1908.
- [84] A. Bansal and S. Verma, “Optical properties of bimetallic (Ag-Cu) core-noble metal shell nanoparticles,” *Journal of Optics*, vol. 45, pp. 7-10, 2016.
- [85] E. R. Encina and E. A. Coronado, “Size Optimization of Iron Oxide@Noble Metal Core–Shell Nanohybrids for Photothermal Applications,” *Journal of Physical Chemistry*, vol. 120, no. 10, pp. 5630-5639, 2016.
- [86] C. Loo, A. Lin, L. Hirsch, M. H. Lee, J. Barton, N. Halas, J. West and R. Drezek, “Nanoshell-enabled photonics-based imaging and therapy of cancer,” *Technology in cancer research & treatment*, vol. 3, no. 1, pp. 33-40, 2004.
- [87] X. Huang, S. Neretina and M. El-Sayed, “Gold Nanorods: From Synthesis and Properties to Biological and Biomedical Applications,” *Advanced Materials*, vol. 21, no. 48, pp. 4880-4910, 2009.
- [88] H. Chen, L. Shao and J. Wang, “Gold nanorods and their plasmonic properties,” *Chemical Society Reviews*, vol. 42, pp. 2679-2724, 2013.
- [89] P. Zhao, N. Li and D. Astruc, “State of the Art in Gold Nanoparticle Synthesis,” *Coordination Chemistry Reviews*, vol. 257, pp. 638-665, 2013.
- [90] J. Kimling, M. Maier, B. Okenve, V. Kotaidis, H. Ballot and A. Plech, “Turkevich Method for Gold Nanoparticle Synthesis Revisited,” *The journal of Physical Chemistry*, vol. 110, no. 32, pp. 15700-15707, 2006.
- [91] N. L. Pacioni, C. D. Borzareli, V. Rey and A. V. Veglia, “Chapter Synthetic Routes for the Preparation of Silver Nanoparticles,” in *Silver Nanoparticle Applications*, 2015, pp. 13-46.
- [92] N. Rajput, “Methods of Preparation of Nanoparticles- A review,” *Journal of Advances in Engineering and Technology*, vol. 7, pp. 1806-1811, 2015.

- [93] B. Swathy, "A Review on Metallic Silver Nanoparticles," *Journal of Pharmacy*, vol. 4, no. 7, pp. 38-44, 2014.
- [94] ThermoFisher Scientific, "Materials Science: Energy Dispersive Spectroscopy," ThermoFisher Scientific, [Online]. Available: <https://www.thermofisher.com/za/en/home/materials-science/eds-technology.html#em-contact-form>. [Accessed 14 September 2022].
- [95] B. L. Dutrow and C. M. Clark, "Instrumentation and Analysis," Integrating research and education, 03 September 2022. [Online]. Available: <https://serc.carleton.edu/18400>. [Accessed 14 September 2022].
- [96] H. M. Ali, T. R. Shah, H. Babar and A. M. Ali, "Hybrid Nanofluids: Techniques and Challenges of Stability enhancement," *Journal of thermal engineering*, pp. 1-8, 2018.
- [97] Y. Xuan and Q. Li, "Investigation on convective heat transfer and flow features of nanofluids," *Journal of Heat and Mass transfer*, vol. 125, no. 1, pp. 151-155, 2003.
- [98] S. O. Kasap, *Principles of Electronic Materials and Devices*, New York: McGraw-Hill, 2006, p. 126.
- [99] Y. Wei and X. Huaqing, "A Review on Nanofluids: Preparation, Stability mechanisms, and Applications," *Journal of Nanomaterials*, pp. 1-18, 2012.
- [100] X. Ye, L. Jin, H. Caglayan, J. Chen, G. Xing and C. Zheng, "Improved size-tunable synthesis of monodisperse gold nanorods through the use of aromatic additives," *American chemical society*, vol. 6, no. 3, pp. 2804-2817, 2012.
- [101] Y. Yu, Q. Zhang, Q. Yao, J. Xie and J. Yang, "Guiding Principles in the Galvanic Replacement Reaction of an underpotentially deposited metal layer for site-selective deposition and shape and size control of satellite nanocrystals," *Chemistry of Materials*, vol. 25, pp. 4746-4756, 2013.