

Selected Publications of Prof. T.J. (Lakis) Mountziaris

- Wang J, Mountziaris TJ, "Homogeneous Immunoassays based on Fluorescence Emission Intensity Variations of Zinc Selenide Quantum Dot Sensors," *Biosensors & Bioelectronics*, in press (2012). [DOI: 10.1016/j.bios.2012.07.015](#)
- Singh T, Mountziaris TJ, Maroudas D, "First-principles theoretical analysis of transition-metal doping of ZnSe quantum dots," *Journal of Applied Physics*, 112 (2), 024301 (2012). [DOI: 10.1063/1.4734841](#)
- Singh T, Mountziaris TJ, Maroudas D, "Transition-Metal Doping of Small Cadmium Selenide Clusters," *Applied Physics Letters*, 100(5), Article No. 053105 (2012). [DOI: 10.1063/1.3680254](#)
- Wang J, Lei P, Andreadis ST, Mountziaris TJ, "Detection of DNA Hybridization via Fluorescence Intensity Variations of ZnSe-DNA Quantum Dot Biosensors," *Analytical Letters*, 45, 227–241 (2012). [DOI: 10.1080/00032719.2011.633190](#)
- Pandey SC, Mountziaris TJ, Maroudas D, "Compositional Effects on the Electronic Structure of ZnSe_{1-x}S_x Ternary Quantum Dots," *Applied Physics Letters*, 99(10), Article No. 101902 (2011). [DOI: 10.1063/1.3633354](#)
- Kuriyedath SR, Kostova B, Kevrekidis IG, Mountziaris TJ, "Lattice Monte Carlo Simulation of Semiconductor Nanocrystal Synthesis in Microemulsion Droplets," *Langmuir*, 2010, 26(13), 11355-11362. [DOI: 10.1021/la100732u](#)
- Kuriyedath SR, Kostova B, Kevrekidis IG, Mountziaris TJ, "Lattice Monte Carlo Simulation of Cluster Coalescence Kinetics with Application to Template-Assisted Synthesis of Quantum Dots," *Industrial & Engineering Chemistry Research*, 2010, 49(21), 10442-10449. [DOI: 10.1021/ie101109p](#)
- Singh T, Mountziaris TJ, Maroudas D, "On the Transition-Metal Doping Efficiency of Zinc Oxide Nanocrystals," *Applied Physics Letters*, 2010, 97, Article No. 073120. [DOI: 10.1063/1.3478216](#)
- Pandey SC, Mountziaris TJ, Venkataraman D, Maroudas D, "Formation of Core/Shell-like ZnSe_{1-x}Te_x Nanocrystals due to Equilibrium Surface Segregation," *Applied Physics Letters*, 2010, 96, Article No. 201910. [DOI: 10.1063/1.3428659](#)
- Alexandridis P, Karanikolos GN, Mountziaris TJ, "Synthesis of Nanostructured Materials Using Liquid Crystalline Templates," United States Patent 7,608,237; publication date: October 27, 2009.
- Mei BC, Oh E, Susumu K, Farrell D, Mountziaris TJ, Mattoussi H, "Effects of Ligand Coordination Number and Surface Curvature on the Stability of Gold Nanoparticles in Aqueous Solutions", *Langmuir*, 2009, 25(18), 10604-10611. [DOI: 10.1021/la901423z](#)
- Mei BC, Wang J, Qiu Q, Heckler T, Petrou A, Mountziaris TJ, "Dilution effects on the photoluminescence of ZnSe quantum-dot dispersions," *Applied Physics Letters*, 2008, 93(8), Article No. 083114. [DOI: 10.1063/1.2970995](#)
- Mei BC, Susumu K, Medintz IL, Delehanty JB, Mountziaris TJ, Mattoussi H, "Modular poly(ethylene glycol) ligands for biocompatible semiconductor and gold nanocrystals with extended pH and ionic stability," *Journal of Materials Chemistry*, 2008, 18(41), 4949-4958. [DOI: 10.1039/B810488C](#)
- Singh T, Mountziaris TJ, Maroudas D, "First-principles theoretical analysis of dopant adsorption and diffusion on surfaces of ZnSe nanocrystals," *Chemical Physics Letters*, 2008, 462(4-6), 465-468. [DOI: 10.1016/j.cplett.2008.07.083](#)
- Singh T, Valipa MS, Mountziaris TJ, Maroudas D, "Mechanisms and Energetics of Hydride Dissociation Reactions on Surfaces of Plasma-Deposited Silicon Thin Films," *Journal of Chemical Physics*, 2007, 127, 194703. [DOI: 10.1063/1.2781393](#)

Sarigiannidis C, Koutsona M, Petrou A, Mountziaris TJ, "Vapor-phase synthesis and surface passivation of ZnSe nanocrystals," *Journal of Nanoparticle Research*, 2006, 8(3-4), 533-542. DOI: [10.1007/s11051-005-9023-z](https://doi.org/10.1007/s11051-005-9023-z)

Karanikolos GN, Law NL, Mallory R, Petrou A, Alexandridis P, Mountziaris TJ, "Water-based synthesis of ZnSe nanostructures using amphiphilic block copolymer stabilized lyotropic liquid crystals as templates," *Nanotechnology*, 2006, 17(13), 3121-3128. DOI: [10.1088/0957-4484/17/13/007](https://doi.org/10.1088/0957-4484/17/13/007)

Pawlowski RP, Salinger AG, Shadid JN, Mountziaris TJ, "Bifurcation and stability analysis of laminar isothermal counterflowing jets," *Journal of Fluid Mechanics*, 2006, 551, 117-139. DOI: [10.1017/S0022112005008396](https://doi.org/10.1017/S0022112005008396)

Janak SL, Taylor MS, Floudas CA, Burka M, Mountziaris TJ, "Novel and effective integer optimization approach for the NSF panel-assignment problem: A multiresource and preference-constrained generalized assignment problem," *Industrial & Engineering Chemistry Research*, 2006, 45(1), 258-265. DOI: [10.1021/ie0504](https://doi.org/10.1021/ie0504)

Karanikolos GN, Alexandridis P, Mallory R, Petrou A, Mountziaris TJ, "Templated synthesis of ZnSe nanostructures using lyotropic liquid crystals," *Nanotechnology*, 2005, 16(10), 2372-2380. DOI: [10.1088/0957-4484/16/10/063](https://doi.org/10.1088/0957-4484/16/10/063)

Karanikolos GN, Alexandridis P, Itskos G, Petrou A, Mountziaris TJ, "Synthesis and Size Control of Luminescent ZnSe Nanocrystals by a Microemulsion-Gas Contacting Technique," *Langmuir*, 2004, 20(3), 550-553. DOI: [10.1021/la035397+](https://doi.org/10.1021/la035397+)

Sikavitsas V, Nitsche JM, Mountziaris TJ, "Transport and Kinetic Processes underlying Biomolecular Interactions in the BIACORE™ Optical Biosensor," *Biotechnology Progress*, 2002, 18(4), 885-897. DOI: [10.1021/bp0200](https://doi.org/10.1021/bp0200)

Sarigiannis D, Peck JD, Kioseoglou G, Petrou A, Mountziaris TJ, "Characterization of Vapor-Phase Grown ZnSe Nanoparticles," *Applied Physics Letters*, 2002, 80(21), 4024-26. DOI: [10.1063/1.1481769](https://doi.org/10.1063/1.1481769)

Pawlowski RP, Theodoropoulos C, Salinger AG, Mountziaris TJ, Moffat HK, Shadid JN, Thrush EJ, "Fundamental Models of the Metalorganic Vapor Phase Epitaxy of Gallium Nitride and Their Use in Reactor Design," *Journal of Crystal Growth*, 2000, 221, 622-628. DOI: [10.1016/S0022-0248\(00\)00789-2](https://doi.org/10.1016/S0022-0248(00)00789-2)

Theodoropoulos C, Mountziaris TJ, Moffat HK, Han J, "Design of Gas Inlets for the Growth of Gallium Nitride Films by Metalorganic Vapor Phase Epitaxy," *Journal of Crystal Growth*, 2000, 217, 65-81. DOI: [10.1016/S0022-0248\(00\)00402-4](https://doi.org/10.1016/S0022-0248(00)00402-4)

Shvartsman SY, Theodoropoulos C, Rico-Martinez R, Titi ES, Mountziaris TJ, Kevrekidis IG, "Order Reduction of Nonlinear Dynamic Models of Distributed Reacting Systems," *Journal of Process Control*, 2000, 10, 177-184. (invited paper) DOI: [10.1016/S0959-1524\(99\)00029-3](https://doi.org/10.1016/S0959-1524(99)00029-3)

Theodoropoulos C, Ingle NK, Mountziaris TJ, "Computational Studies of the Transient Behavior of Horizontal Metalorganic Vapor Phase Epitaxy (MOVPE) Reactors," *Journal of Crystal Growth*, 1997, 170, 72-76. DOI: [10.1016/S0022-0248\(96\)00637-9](https://doi.org/10.1016/S0022-0248(96)00637-9)

Peck J, Mountziaris TJ, Stoltz S, Petrou A, Mattocks P, "Metal-Organic Vapor Phase Epitaxy of Zn_{1-x}FexSe Films," *Journal of Crystal Growth*, 1997, 170, 523-527. DOI: [10.1016/S0022-0248\(96\)00638-0](https://doi.org/10.1016/S0022-0248(96)00638-0)

Gupta V, Safvi SA, Mountziaris TJ, "Gas-Phase Decomposition Kinetics in a Wall-less Environment using a Counterflow Jet Reactor: Design and Feasibility Studies," *Industrial & Engineering Chemistry Research*, 1996, 35(9), 3248-3255. DOI: [10.1021/ie960082t](https://doi.org/10.1021/ie960082t)

Mountziaris TJ, Peck J, Stoltz S, Yu WY, Petrou A, Mattocks P, "Metal-Organic Vapor Phase Epitaxy and Characterization of Zn_{1-x}FexSe Films," *Applied Physics Letters*, 1996, 68(16), 2270-2272. DOI: [10.1063/1.11](https://doi.org/10.1063/1.11)

Ingle NK, Theodoropoulos C, Mountziaris TJ, Wexler RM, Smith FTJ, "Reaction Kinetics and Transport Phenomena underlying the Low-Pressure Metalorganic Chemical Vapor Deposition of GaAs," *Journal of Crystal Growth*, 1996, 167, 543-556. [DOI:10.1016/0022-0248\(96\)00277-1](https://doi.org/10.1016/0022-0248(96)00277-1)

Theodoropoulos C, Ingle NK, Mountziaris TJ, Chen Z-Y, Liu PL, Kioseoglou G, Petrou A, "Kinetic and Transport Modelling of the Metalorganic Chemical Vapor Deposition of Indium Phosphide from Trimethylindium and Phosphine and Comparison with Experiments", *Journal of the Electrochemical Society*, 1995, 142, 2086-2094. [DOI: 10.1149/1.2044246](https://doi.org/10.1149/1.2044246)

Ingle NK, Mountziaris TJ, "A Multifrontal Algorithm for the Solution of Large Systems of Equations using Network-Based Parallel Computing," *Computers & Chemical Engineering*, 1995, 19, 671-681. [DOI: 10.1016/0098-1354\(94\)00074-3](https://doi.org/10.1016/0098-1354(94)00074-3)

Safvi SA, Mountziaris TJ, "A New Reactor for Purely Homogeneous Kinetic Studies of Endothermic Reactions," *AIChE Journal*, 1994, 40, 1535-1548. [DOI: 10.1002/aic.690400912](https://doi.org/10.1002/aic.690400912)

Ingle NK, Mountziaris TJ, "The Onset of Transverse Recirculations During Flow of Gases in Horizontal Ducts with Differentially Heated Lower Walls," *Journal of Fluid Mechanics*, 1994, 277, 249-269. [DOI: 10.1017/S0022112094002752](https://doi.org/10.1017/S0022112094002752); Corrigendum: *Journal of Fluid Mechanics*, 1996, 316, 373-373. [DOI:10.1017/S0022112096000](https://doi.org/10.1017/S0022112096000)

Mountziaris TJ, Kalyanasundaram S, Ingle NK, "A Reaction-Transport Model of GaAs Growth by Metalorganic Chemical Vapor Deposition using Trimethyl-gallium and Tertiary-butyl-arsine," *Journal of Crystal Growth*, 1993, 131, 283-299. [DOI:10.1016/0022-0248\(93\)90178-Y](https://doi.org/10.1016/0022-0248(93)90178-Y)

Mountziaris TJ, Jackson R, "The effects of aeration on the gravity flow of particles and gas in vertical standpipes," *Chemical Engineering Science*, 1991, 46, 381-407. [DOI:10.1016/0009-2509\(91\)80001-F](https://doi.org/10.1016/0009-2509(91)80001-F)