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Education

Columbia University	Post Doctoral Fellow	2001
Columbia University	Ph. D., Applied Physics/Solid State	1998
Columbia University	M.Sc. Materials Science & Engineering	1995
Odessa State University, Ukraine	B.Sc. Theoretical Physics	1981

Professional Experience

Assistant Professor	Queens College	2004 to Present
Associate Research Scientist	Columbia University	2001 to 2004
Adjunct Assistant Professor	Columbia University	1999 to 2000
Graduate Research Assistant	Columbia University	1993 to 1998
Research Scientific Assistant	Odessa State University	1989 to 1992

Research Interest

Science and technology at nanoscale have numerous opportunities for fundamental research as well as new applications. Quantum dots (nanocrystals), nanowires, and nanorods are among the most important building blocks of nano-photonics devices. Therefore, the understanding of underlying fundamental physical phenomena in such structures is very important for future progress. We are interested in fundamental properties of wide band gap nanostructured materials, including those with type-II band alignment, with potential application in photo-detection, quantum information, and biomedical field.

Selected Publications

- *Doping Aspects Of Zn-Based Wide Bandgap Semiconductors, in Springer Handbook on Electronic and Photonic Materials*, G.F. Neumark, Igor L Kuskovsky, Y. Gong, Springer-Verlag, 2007 (Invited Publication).
- *Mechanism for increasing dopant incorporation in semiconductors via doped nanostructures*, Igor L. Kuskovsky, Y. Gu, Y. Gong, H. F. Yan, J. Lau, I. C. Noyan, G. F. Neumark, O. Maksimov, X. Zhou, M. C. Tamargo, V. Volkov, Y. Zhu, and L. Wang, Phys. Rev. B 73, 195306 (2006).
- *Structure of Zn–Se–Te system with submonolayer insertion of ZnTe grown by migration enhanced epitaxy*, Y. Gong, Hanfei F. Yan, I. L. Kuskovsky, Y. Gu, I. C. Noyan, and G. F. Neumark, and M. C. Tamargo, J. Appl. Phys. 99, 064913 (2006).
- *Morphological Control and Photoluminescence of Zinc Oxide Nanocrystals*, Tamar Andelman, Yinyan Gong, Mark Polking, Ming Yin, Igor Kuskovsky, Gertrude Neumark, and Stephen O'Brien, J. Phys. Chem B 109, 14314 (2005).
- Y. Gu, Igor L. Kuskovsky, M. van der Voort, G.F. Neumark, X. Zhou, and M.C. Tamargo, Zn-Se-Te Multilayers With Sub-monolayer Quantities of Te: Type-II Quantum Structures and Isoelectronic Centers, Phys. Rev. B. 71, 045340 (2005).

- *Quantum Confinement in ZnO Nanorods*, Y. Gu, Igor L. Kuskovsky, Y. Min, S. O'Brien, G. F. Neumark, Appl. Phys. Lett. 85, 3383 (2004).
- *Zinc Oxide Quantum Rods*, Ming Yin, Yi Gu, Igor L. Kuskovsky, Tamar Andelman, Yimei Zhu, G.F. Neumark, and Stephen O'Brien, J. Am. Chem Soc. (Communications) 126, 6206 (2004).
- *Determination of Size and Composition of Optically Active CdZnSe/ZnBeSe Quantum Dots*, Y. Gu, Igor L. Kuskovsky, J. Fung, R. Robinson, I.P. Herman, G.F. Neumark, X. Zhou, S.P. Guo and M.C. Tamargo, Appl. Phys. Lett. 83, 3779 (2003).
- *Resonant donor defect as a cause of compensation in p-type ZnSe: Photoluminescence studies under hydrostatic pressure*, Igor L. Kuskovsky, G. F. Neumark, J.G. Tischler, and B. A. Weinstein, Phys. Rev. B 63 161201 (2001).
- *The Role of Potential Fluctuations in cw Luminescence of Heavily Doped Materials*, I. Kuskovsky, D. Li, G.F. Neumark, V.N. Bondarev, and P.V. Pikhitsa, Appl. Phys. Lett. 75, 1243 (1999).
- *Decay Dynamics In Disordered Systems: Application To Heavily Doped Semiconductors*, I. Kuskovsky, G.F. Neumark, V.N. Bondarev, and P.V. Pikhitsa, Phys. Rev. Lett., 80, 2413 (1998).