



## ZnCdMgSe-based heterostructures for mid-IR intersubband devices

Wednesday, April 4, 2007  
Babbio Bldg, Room 122, Time 11am

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Intersubband devices are semiconductor devices that operate based on electronic and optical transitions that occur between energy levels within one band, the conduction band or the valence band. Examples of these are quantum well infrared photodetectors (QWIPs) and quantum cascade lasers (QCLs). In these, the transitions of interest occur between different energy levels in the conduction band of a quantum well. In order to have a broad range of energies associated with these transitions, a large conduction band offset is desirable. Heterostructures of the wide bandgap II-VI materials system ZnCdMgSe offer these large conduction band offsets, and thus are of interest for these applications. During the past several years we have explored and optimized the characteristics of these materials for QCL and QWIP applications operating at shorter wavelengths than currently available. Strong and tunable intersubband transitions in the 3-6  $\mu\text{m}$  range have been demonstrated.

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**Maria C. Tamargo** is Professor of Chemistry and Dean of Science at the City College of New York. She joined City College in 1993 after spending fourteen years as a Member of Technical Staff at Bell Laboratories and Bellcore. She leads a research program on Molecular Beam Epitaxy of II-VI and III-V semiconductors. Dr. Tamargo is the author of over 200 papers in the field of semiconductor materials research. She has chaired numerous symposia and conferences on various topics related to semiconductor materials research, including the 2003 International Conference on II-VI Compounds held in Niagara Falls, NY.

Light refreshments will be served prior to seminar

For additional information please contact Prof. Stefan Strauf, [strauf@stevens.edu](mailto:strauf@stevens.edu)



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