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Research summary:

I am interested in the design and development of new devices and methods based on light-matter interactions at the nanoscale. Examples of current interests include acoustic vibrations of plasmonic nanostructures for sensing applications, plasmonic tips for optical rectification and applications requiring very small spot size and large plasmonic enhancement, interferometric laser microscopy techniques to measure nano-mechanical dynamics of nanofabricated and self-assembled structures. My research Interests includes: plasmonics, photonics, nano-optics, metamaterials and all optical signal processing.

Selected Publications (for complete list see http://tinyurl.com/mfrdgdc)

- "Single Molecule Directivity Enhanced Raman Scattering using Nanoantennas," **Aftab Ahmed** and R. Gordon, ***Nano Letters***, 12, 2625-2630, **2012**.
- "Structural and Optical Properties of Self-Assembled Chains of Plasmonic Nanocubes," Anna Klinkova, Heloise Therien-Aubin, **Aftab Ahmed**, Dmytro Nykypanchuk, Rachelle M. Choueiri, Brandon Gagnon, Anastasiya Muntyanu, Oleg Gang, Gilbert C. Walker, and Eugenia Kumacheva, ***Nano Letters***, dx.doi.org/10.1021/nl502746h, **2014**.
- "In Situ Plasmonic Counter for Polymerization of Gold Nanorods in Solution," K. Liu*, **A. Ahmed***, S. Chung, K. Sugikawa, G. Wu, Z. Nie, R. Gordon, E. Kumacheva, ***ACS Nano*** , 7(7), 5901-5910, **2013**.

  (* Equal contribution)
- "Directivity Enhanced Raman Spectroscopy using Nanoantennas," **Aftab Ahmed** and R. Gordon, ***Nano Letters***, 11, 1800-1803, **2011**.
- "SERS using Lipid Encapsulated Plasmonic Nanoparticles and J-Aggregates to Create Locally Enhanced Electric Fields," Colin Zamecnik, **Aftab Ahmed**, Christopher Walters, Reuven Gordon and Gilbert Walker, ***The Journal of Physical Chemistry C***, 117, 1879-1886, **2013**.
- "Plasmon hybridization for enhanced nonlinear optical response," Ghazal Hajisalem, **Aftab Ahmed**, Yuanjie Pang and Reuven Gordon, ***Optics Express***, 20(28), 29923-29930, **2012**.
- "Probing Dynamic Generation of Hot-Spots in Self-Assembled Chains of Gold Nanorods by Surface-Enhanced Raman Scattering," A. Lee, G. F. S. Andrade, **Aftab Ahmed**, Michele L. Souza, N. Coombs, E. Tumarkin, K. Liu, R. Gordon, A. G. Brolo and E. Kumacheva ***Journal of the American Chemical Society***, 133, 7563-7570, **2011**.