New reactions for synthesis and biology

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This lecture will cover several topics surrounding the general theme of inventing and developing new activation modes for chemical synthesis that enable a range of new transformations amenable to late-stage functionalization in small molecules and biomacromolecules. The three areas that will be covered will focus on new methods for one carbon homologation of complex organic molecules; high throughout synthesis technologies & its application to reaction development, and selective modification at guanosine residues in in complex nucleic acids. The new reactions and technologies will be showcased in the context of how they can be important to complex molecule synthesis and chemical biology.