Cross-coupling methodology is an indispensable part of the everyday repertoire of synthetic organic chemists. A mechanistic scheme for this transformation is shown below. This methodology has been widely utilized throughout academia and industry.

This lecture will include: 1) An introduction to palladium-catalyzed carbon-heteroatom bond-forming reactions including an historical overview. 2) A description of ligand and precatalyst development employing biarylphosphines. 3) Applications of these catalysts to the preparation of compounds of interest to medicinal chemists. 4) Examples of the use of Pd complexes for the selective functionalization of large molecules. 5) If time permits, some of our recent development of Cu catalysts for C-heteroatom bond formation.

References: