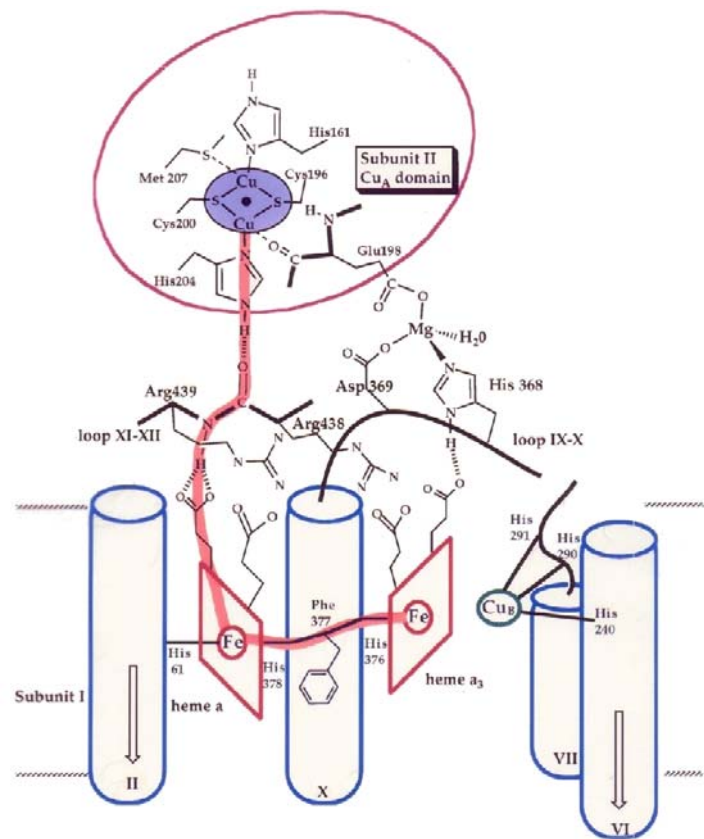


**2009-2010 Monday Colloquium Series (BUYCC Lecturer)**

Electron transfers in photosynthesis and respiration commonly occur between metal-containing cofactors that are separated by large molecular distances. Understanding the underlying physics and chemistry of these biological electron transfer processes is the goal of much of the work in my laboratory. Employing laser flash-quench triggering methods, we have shown that 20-angstrom, coupling-limited Fe(II) to Ru(III) and Cu(I) to Ru(III) electron tunneling in Ru-modified cytochromes and blue copper proteins can occur on the microsecond timescale both in solutions and crystals. Redox equivalents can be transferred even longer distances by multistep tunneling, often called hopping, through intervening amino acid side chains. The lessons we have learned about the control of electron tunneling and hopping through biological molecules are now guiding the design and construction of sensitizer-modified proteins and other molecular machines for the production of fuels from sunlight and water.



**The Currents of Life: Electron Flow through Metalloproteins**

**Prof. Harry Gray**

**California Institute of Technology**

Monday – March 1, 2010

4:30 pm: Lecture

4:00 pm: Pre-Lecture Reception

Host: BUYCC

Life Science and Engineering Building Auditorium

24 Cummington Street, B01

[www.bu.edu/chemistry](http://www.bu.edu/chemistry)