

O₂ and N₂O activation by binuclear, trinuclear, and tetranuclear copper clusters

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This talk focuses on four timely topics in copper bioinorganic chemistry: 1) O₂ binding and activation by binuclear copper centers (hemocyanin and tyrosinase); 2) non-coupled vs. exchanged coupled binuclear copper reaction mechanisms (dopamine β -monooxygenase and peptidyl-glycine α -hydroxylating monooxygenase relative to hemocyanin and tyrosinase); 3) the mechanism of the four-electron reduction of O₂ to H₂O by the trinuclear copper cluster site in the multicopper oxidases; and 4) N₂O reduction by the μ_4 -sulfide bridged tetranuclear Cu₄ cluster in nitrous oxide reductase.