

Concept Transfers from Nature

Professor Steven J Langford

School of Chemistry, Monash University

Nature uses self-assembly and self-organisation processes to produce thermodynamically stable structures at the cellular and sub-cellular levels from smaller components designed for structure or function. This lecture focuses on using these concepts (employing metalloporphyrins, naphthalene diimides and peptide nucleic acids) to form functioning systems on the nanometer scale. A number of recent examples from our lab base around energy transduction devices, molecular based logic, sensor and switching devices, light harvesting systems and antisense therapies for treatment of neurodegenerative diseases will be presented.