Carbon nanotube molecular conduit

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Single walled carbon nanotube is a tubular carbon nanomaterial having the structure of a rolled-up graphene sheet. With its atomically smooth interior and small diameter (~ 1 nm), comparable to the size of a single molecule, the material can potentially serve as a highly efficient molecular conduit and a selective molecular filter that in part resembles the properties of protein ion channels in biological systems. In this talk I will be presenting the stochastic pore-blocking events and the self-generated rhythms observed from the interior of single walled carbon nanotubes. Potential applications of the system including the ongoing research projects in our group will be briefly discussed.