

Role of Water in Bone Microstructure

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Water mediated hydrogen bonding has witnessed remarkable experimental and theoretical progress over the last several decade and still many important aqueous phenomena remain poorly understood. We have been developing solid state nuclear magnetic resonance experiments to probe role of water in different biological systems. The systems include supramolecular assemblies of bacteriophage (1), biomaterial bones (2) and water mediated hydrogen bonding network in collagen protein (3). We have also observed experimental signature of Nuclear Quantum Effect in these systems. Experimental results of depicting structural role of water in these biological systems and effect of H/D exchange will be presented. We will also present experimental results to measure water dynamics at the organic – inorganic interface of bone matrix.

References:

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