

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Morphological Characterization of type I collagen fibrils network**

SEJIN HAN, University of Maryland — The self-assembly, termed fibrillogenesis of type I homozygous mutant and wild-type collagen revealed substantial differences in the kinetics and morphology. Computational Homology, in particular, Betti numbers, is used as a measure of the structural differences in collagen fibrils network. The Betti numbers are the most computable algebraic topological invariant, remaining constant under deformations, as primarily describing the connections between different components. In collagen network, it can implicate that the  $0^{th}$  betti number represents the number of disjointed fibers; the 1st betti number is the maximum number of cuts and  $2^{nd}$  betti number is the number of cavities in network.

Sejin Han  
University of Maryland

Date submitted: 28 Dec 2006

Electronic form version 1.4