



PHYSICS COLLOQUIUM: Disorder as a Driver of Biological Filtration

Date: **1/24/20**

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Location: **COB2 140**

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Abstract

The nuclear pore complex is a remarkable filter that allows the selective passage of some macromolecules while inhibiting the passage of others. The primary filter of the nuclear pore complex is made of intrinsically disordered protein domains, those lacking any stable secondary or tertiary structure. We seek to determine how these flexible filaments can be used to form a selective filter. This effort is confounded by the sensitivity of disordered proteins to their environments. We combine in cell NMR, in vitro experiments and analytical models to show that binding to flexible filaments can give rise to unexpected diffusive properties that contribute to motion through biological filters.

