

Abstract Submitted  
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**Bio-inspired metal-coordination dynamics: A unique tool for engineering novel properties in soft matter systems** SCOTT GRINDY, QIAOCHU LI, ABIGAIL HALIM, ROBERT LEARSCH, NIELS HOLTEN-ANDERSEN, Massachusetts Inst of Tech-MIT — In soft material systems, materials properties are generally governed by transient, dynamic interactions of many types over many hierarchal length- and time-scales. However, explicit control over these dynamics is not always possible, leaving open questions into how transient interactions can be exploited to design soft materials with unique and exceptional properties. Inspired by the adhesive chemistry and tough character of mussel byssal threads, we present several studies on both the mechanical properties of soft materials and templated crystallization kinetics to show the diverse array of materials properties that can be generated using bio-inspired metal-coordination. By studying our model systems, we can determine the explicit effects of metal-coordination dynamics on various bulk properties, further adding to the set of tools we can use to design soft material systems.

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