

Technology: [Dynamic mechanical polyner nanocomposites](#)

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Abstract

Polymer nanocomposites exhibit a reversible change in stiffness and strength in response to a stimulus. The polymer nanocomposites include a matrix polymer with a comparably low modulus and strength and nanoparticles that have a comparably high modulus and strength. The particle-particle interactions are switched by the stimulus, to change the overall material's mechanical properties. In a preferred embodiment, a chemical regulator is used to facilitate changes of the mechanical properties. Methods for inducing modulus changes in polymer nanocomposites are also disclosed.