

Nanoparticle separators and nanoactuators using magnetically active polymer brushes

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Magnetic filaments or Stockmayer polymers are strings of magnetic nanocolloids linked consecutively to form nano-chains. These supramolecular polymers can be attached by one of their ends to a surface in order to create magnetic brushes (see figure 1) which can be used as actuators as well as filters among many other applications. In this contribution we will summarize our main findings via numerical simulations about these complex systems [1, 2, 3], the complex inner structure arising in the magnetic brushes [4, 5], and in particular the use of those active brushes to separate mixtures of nanoparticles of different sizes as well as its capacity to actuate as nanoactuators [4, 5, 6].

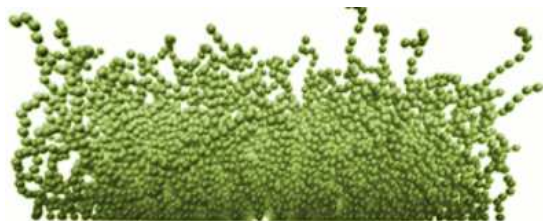


Figure 1: Schematic representation of a magnetic brush.

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