

Abstract Submitted
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Nano Motor Construction¹ CRAIG SHAFFER, SHAWN PICKERING, DONGDONG JIA, ANURA U. GOONEWARDENE, Dept. of Geology and Physics, Lock Haven University of Pennsylvania, NANOTECH LHUP TEAM — Ten micron-sized polystyrene spheres were applied to a quartz substrate with a dodecyl solution to make a monolayer of microspheres. The microspheres are found to self-assemble as a monolayer on the surface. A platinum thin layer was deposited onto the surface with a Hummer IV sputter coater and then placed into a diluted chloroform solution. The chloroform removed the microspheres from the surface, which gave a honeycomb structure on the surface of the quartz substrate. Using a liftoff process the honeycomb structure was lifted from the substrate. The honeycomb structure was then broken to get a single ring. The single ring was placed in a liquid solution with a low viscosity so that the ring will not encounter much resistance while moving. An alternating magnetic field generated by applying an AC current to two Helmholtz coils was applied to the ring to create an induced current inside the ring. A permanent magnetic field was applied in the perpendicular direction to the formal field to make the ring to rotate by generating a magnetic torque. To ensure the ring was spinning a laser beam was focusing on the ring, and a change in the reflected pattern.

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