

Nanomolecular motor spins on a surface

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Netherlands scientists say they've developed the first molecular motor that rotates in just one direction while attached to a solid surface.

Although similar motor molecules have been made before, they have only worked in liquid solutions. Useful nanomachines built from individual molecules would need motors that could be anchored to a solid.

Ben Feringa of the University of Groningen and colleagues say their motor is based on a molecule with two "legs" that has sulfur atoms at its "feet." Those atoms cling to the surface of a tiny gold nanoparticle.

When the molecule is exposed to light and heat, it swivels at the waist, Feringa said. The rotary motion is restricted to one direction by chemical groups in the upper portion of the motor that act as a ratchet, preventing the molecule from slipping back in the opposite direction.

The discovery is reported in the current issue of the journal *Nature*.

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