

# Go Speed Racer! Revving up the world's fastest nanomotors



Green lines show results of "racing," where images a, b, c, and d represent the tracks left by various types of speeding nanomotors. The winner is "c," a "catalytic nanomotor" composed of gold and platinum nanowires supercharged with carbon nanotubes. Courtesy of the American Chemical Society

**In a "major step" toward a practical energy source for powering tomorrow's nanomachines, researchers in Arizona report development of a new generation of sub-microscopic nanomotors that are up to 10 times more powerful than existing motors. Their study is scheduled for the May 27 issue of *ACS Nano* journal.**

In the new study, Joseph Wang and colleagues point out that existing nanomotors, including so-called "catalytic nanomotors," are made with gold and platinum nanowires and use hydrogen peroxide fuel for self-propulsion. But these motors are too slow and inefficient for practical use, with top speeds of about 10 micrometers per second, the researchers say.

Wang and colleagues supercharged their nanomotors by inserting carbon nanotubes into the platinum, thus boosting average speed to 60 micrometers per second. Spiking the hydrogen peroxide fuel with hydrazine (a type of rocket fuel) kicked up the speed still further, to 94- 200 micrometers per second. This innovation "offers great promise for self-powered nanoscale transport and delivery systems," the scientists state.

Click [here](#) for video of the nanomotors in action.

Source: American Chemical Society

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study, research, no part may be reproduced without the written permission. The content is provided for information purposes only.*