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SUNY Engineers Developing Regenerative Shock Absorber

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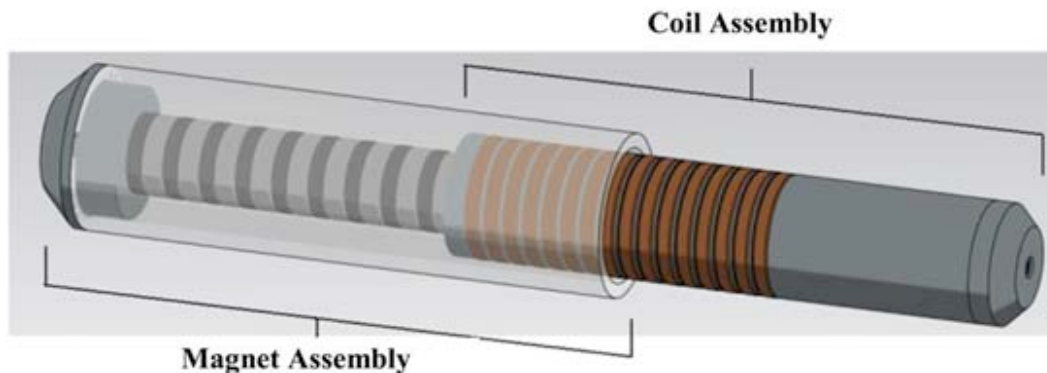
Mechanical engineers from

the [State University of New York](#) at Stony Brook are developing a regenerative shock absorber that recovers a vehicle's vibrational energy and converts it into usable electricity.

Unlike the regenerative [shock absorber system designed by Massachusetts Institute of Technology](#) where fluid is forced through the turbine and generates energy when vehicle goes over bumps in the road, this regenerative shock absorber relies on magnetic flux to generate power.

The researchers have built a 1:2 scale prototype that generates 2-8W of power during typical driving conditions at a speed of about

45mph. They predict that a full scale system on all four wheels of a car will be able to generate up to 256W.



The shock absorber consists of two tube-like components - a hollow coil assembly and a magnet assembly that uses vibrational energy from the vehicle's suspension to move up and down inside it.

The coil component is made of copper coils wound around a plastic delrin tube, while the magnetic assembly is made of ring-shaped permanent magnets and ring-shaped high magnetically permeable spacers stacked on a rod of high reluctance material.

When the vehicle is in motion, the vibrations in the suspension cause the coil tube to move relative to the magnetic tube. As the copper coils move inside this magnetic field, a voltage is generated, which can be used to recharge the car's batteries.

[source: [Physorg](#)]

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FURTHER READING

Click any one of the following links to be taken to a website which contains the following documents.

The following are some patents.

[1976792_ELECTRIC_SHOCK_ABSORBER](#)
[3941402_Electromagnetic_shock_absorber](#)
[4032829_Road_shock_energy_converter](#)
[5347186_Linear_motion_electric_power_generator](#)
[5818132_Linear_motion_electric_power_generator](#)
[6952060_Electromagnetic_linear_generator](#)
[7357229_Electromagnetic_shock_absorber](#)
[7362003_Coil_switching_circuit_for_linear_generation](#)

Some more information concerning the harvesting of shock absorber energy.

[electromagnetic energy harvester for vehicle suspensions](#)
[Regenerative Shock Absorber](#)
[Vehicle shock absorber recovers energy](#)

A common method of energy harvesting involves the used of vibration.

[5578877_Apparatus_for_converting_vibratory_motion](#)
[6897573_Electrical_voltage_generating_device](#)
[7569952_High_efficiency__inductive_vibration_energy_harvester](#)

[Energy harvesting from vibration](#)
[Getting Started with Vibration Energy Harvesting_V7](#)

The following are some other new applications and patents.

[6982497_Backpack_for_harvesting_electric](#)
[7168532_Wave_energy_Converter__WEC__with_Magnetic_Braking](#)
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