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- AUTOMOTIVE

The revolutionary wave disc generator combustion engine

VINCENT RICE AUGUST 4, 2011

5 PICTURES



The heart of the wave generator motor

[Image Gallery](#) (5 images)

The mid-term future for fuel efficient vehicles with useful range is likely a hybrid solution of electric motors powered by batteries, topped up by a fuel-burning generator. Dr. Norbert Müller at Michigan State, backed by \$2.5 million from the US Government, aims to make that last part of the equation a much more compact and efficient proposition with a revolutionary new form of combustion

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The spherical genius of the Hüttlin Kugelmotor

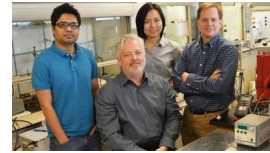


Duke Engines' incredibly compact, lightweight valveless axial engine



Unique electric torque vectoring tech enters real world

engine.



Liquid hydrocarbon fuel created from CO2 and water in breakthrough one-step process

The culmination of years of research, the latest version is in the form of a spinning metal disc with precisely-calculated radial channels. Fuel/air mixture enters via the central hub and travels outwards. As the disc spins the channel exit becomes closed off causing a back-shock. Because the inlet port is now closed off to the channel this causes compression (like a piston) and the fuel/air mixture is then ignited. The expansion of the explosion powers the wheel, opening the channel once more to the inlet and outlet ports. The exhaust gas is ejected and fuel/air is sucked in to repeat the process - at very high speed naturally.



Scientists make "Impossible Material" ... by accident

This elegant design does away with many of the moving parts and circulatory systems of conventional combustion engines that lower their fuel-use efficiency, typically 15%. Dr. Müller is obtaining efficiencies of 60% with the wave disc design and of course the weight of the engine is greatly reduced.



Shark Wheel literally reinvents the wheel, at least for skateboards

"Our goal is to enable hyper-efficient hybrid vehicles to meet consumer needs for a 500mile driving range, lower vehicle prices, full-size utility, improved highway performance and very low operating costs," says Müller. "The WDG (Wave Disc Generator) also can reduce carbon dioxide emissions by as much as 95% in comparison to modern internal combustion engine vehicles."

While the team's focus is very much on automotive use, for obvious reasons, there is clearly potential for the creation of very compact and efficient electricity generators that would sell in vast numbers across the world. For the moment however this all still in the research phase and we have to take the team's claims of potential emissions reduction on trust.



Nissan's new 400 bhp engine fits in carry-on luggage

A "car-sized" 25 kW (33.5 hp) version of the working prototype is due by the end of the year with further funding required after February 2012. We hope Dr. Müller and his team get the money they need to bring this elegant solution to a pressing need to market as soon as possible.



3D-printed titanium offers new possibilities for bike builders

Faculty conversations: Norbert Mueller



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