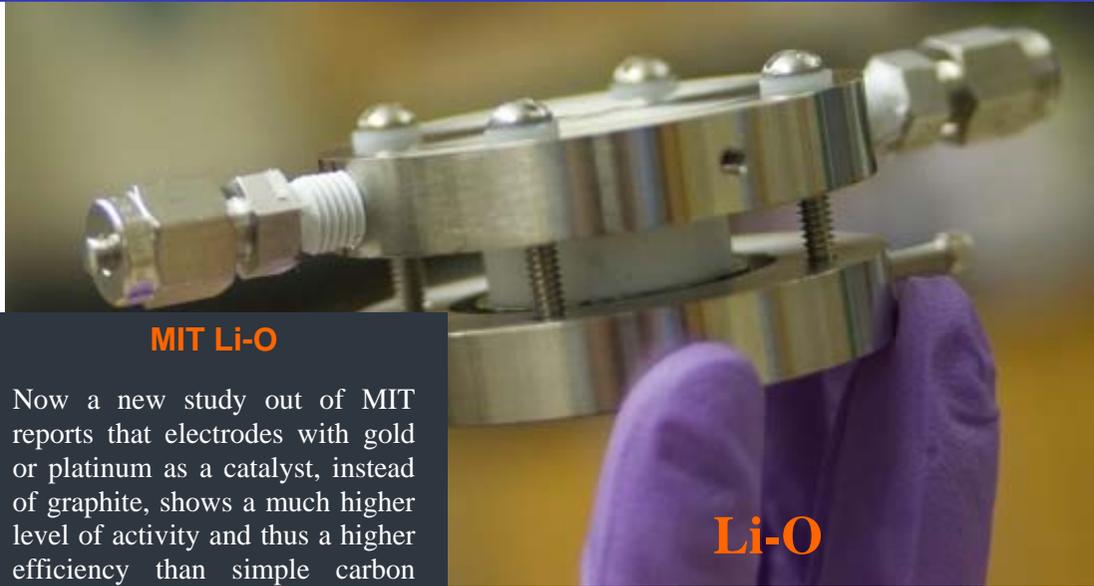


Lithium Air Cell



MIT Li-O

Now a new study out of MIT reports that electrodes with gold or platinum as a catalyst, instead of graphite, shows a much higher level of activity and thus a higher efficiency than simple carbon electrodes. MIT's work sets the stage for further research that could lead to even better electrode materials, perhaps alloys of gold and platinum or other metals, or metallic oxides, and to less expensive alternatives. The MIT team admits there are still a number of issues that need to be addressed before lithium-air batteries become a practical commercial product; such as lithium's reaction to water. But their techniques are proving that Lithium has a long way to go before its power density maxes out.

Li-O

Lithium-air battery technology may be the next super battery for EV use. With the potential of providing energy densities up to three times that of the conventional lithium-ion batteries. Lithium-air (also known as lithium-oxygen) batteries are similar in principle to lithium-ion batteries. However, in lithium-air batteries the electrochemical coupling of a lithium anode to atmospheric oxygen has been achieved through a carbon-based air cathode instead of the heavy conventional compounds found in lithium-ion cells. This is a good thing as they are able to have higher energy density because of the lighter cathode and the fact that oxygen is freely available in the environment and doesn't need to be stored in the battery for the reaction to take place.

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29

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CATA-strophic

The Catavolt is really two bikes in one, firstly it is an eFXC race bike with an EnerTrac hub motor especially designed for the task. Output is somewhere in the 30kW range but as this design is experimental full specs are unknown, the unit is cooled by forced air to aid in dissipating the internal heat. Secondly as a speed record bike the elongated swing arm is fitted with four Mars double stack Brushless DC motors providing a 150kW output powering the bike to a top speed in excess of 320kmh – each pair of motors across the frame are driven by a single Kelly 144V 600A 3 phase controller. Power is supplied by a pack containing 294 - 8AH, 20C, 3.2V Li cells configured as a 156 volt 48 Ah power pack. This could be a great avenue for EV acceptance in OZ.



Catavolt & eFXC

Seems other EV-ers were busy watching the Isle of Mann electric TT race from 2009/10, so much so that the Australian FX superbike championship has optioned in an electric superbike competition (eFXC/TTXGP). With three rounds, (Eastern Creek – July 1 to 3; Winton – September 2 to 4 and Wakefield Park – October 8 & 9) being scheduled, with a trial having already been run at Wakefield at the beginning of May where Catavolt and RippertonR1 were put through their paces. RippertonR1 (see below) runs a MARS motor setup giving it a top speed of about 130kmh its power comes from a LiPO battery pack of 7kWh, 136V and 52Ah that can provide 4800A peak and weighs in at 48kg.



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ALTERNATIVE TECHNOLOGY ASSOCIATION : Promoting energy saving & conservation to households

Boxster E

In spite of the extra weight, Porsche says the twin-engined E version has the driving dynamics of the Boxster S.



The Boxster E comes with all safety features carried over from the production model. However, the ceramic composite brakes are new and have been designed to optimise recuperation of energy, while a revised Touch Screen display provides intelligent information about range and how many kilometres you can save by changing the vehicle's operation settings.



The electric-powered Boxster prototypes will be used in a German government-funded trial called "Model Region Electro-Mobility Stuttgart" which will study the practicality of fully-electric vehicles.

Porsche Boxster E



Porsche, having already inspired the EV world with the Hybrid GT3 R and 918 Spyder released the Boxster E all electric at the Michelin challenge in Berlin on May 24th. The first Boxster E sports car features two 90kW/270Nm electric motors – one mounted on each axle, the front occupying the space usually filled by the fuel tank – the rear where the transmission usually hangs out!

As a result, the Boxster E is all-wheel drive producing a total of 180kW of power and 540Nm of torque at 12,000rpm (unfortunately, there's no tachometer inside, only an 'E-power' meter). With a Porsche-built 29kWh lithium-iron-phosphate battery on board, the all-wheel drive accelerates from 0-100km/h in just 5.5 seconds

and is limited to a top speed of 200km/h Porsche also has two single-engined rear-wheel drive Boxster E prototypes, which run from 0-100kmh in a rather slightly sluggish time of 9.8 seconds, maxing out at 150km/h. It's reported that the Boxster E can achieve a range of 170km before it needs to be recharged, which takes nine hours from a standard power outlet or substantially less time from a fast-charge port.

The battery weighs in at 341kg, with the total car weight tipping the scales at 1600kg (believed to be the single-engined variant). The standard petrol-powered production Boxster weighs 1355kg.

The Shape of Things to Come??



EV Cup - iRacer

Touted as world's first race series specifically for zero-emission electric cars, EV Cup was originally scheduled to kick off its introductory season in England at Silverstone on August 6. However, it has now been delayed and will start off in the U.S. with two race events in California at Laguna Seca in November and the Auto Club Speedway in December, ahead of the first full series in 2012. Organizers say they wanted to ensure that everything was ready before the series kicks off and cited safety requirements, car delivery schedules and the need for testing time as the reasons for the switch – In addition the US seems to be far more enthusiastic towards EV technology opening up a larger sponsor group for the first two show events. EV Cup is a seven-race series that includes two classes of electric cars - the City EV class and the Sports EV class. City EV class is limited to city focused, production vehicles and will feature modified THINK City cars running 30kW 3ph AC motors with Enerdel Li ion batteries, 100km range & 135kmh. The Sports EV class will feature the iRACER, Sportscar that is designed for sprint racing with a peak power of 200kW, 660Nm of torque and 185kmh. To create a lightweight, and low cost body, the iRACER is constructed from a range of materials, with a stretched lycra skin over an aluminum frame.

This Month's Q&A Technology Tip

Q: I would like to convert my motorbike to electric drive what options give the best range?

A: The hub motor range from EnerTrac currently seems to be a reasonable option. With a hub motor in the rear wheel you get the entire frame to place batteries, increasing your range. Power 10kW continuous @ 96V gives 100kmh. US\$1295

See <http://www.enertrac.net/product.php#a>

PS. The cougar WORKS – it's been powering Peters Ute for a couple of weeks and all is holding together.

