High-energy Lithium Batteries

VTIP 19-004: "Three Dimensionally Doped High-energy Battery Cathode Materials"

THE CHALLENGE

Lithium ion batteries are utilized as power sources in a wide range of applications due to their high energy density capabilities. They are the ideal power source for today's electric and hybrid electric vehicles. Much of the future of renewable energy will be shaped by the evolution of lithium ion batteries and the industry is expected to grow to over $80 billion. Batteries that are safer and longer lasting are needed to improve existing technology.

A BMW i3 in which this technology could be implemented (image from topgear.com).

OUR SOLUTION

Feng Lin and his research group have developed methods and compositions for advanced high-energy battery cathodes. They use a doping technique with high-performance cathode materials to improve the discharge capacity retention over the lifespan of a battery. This invention could be utilized to produce longer lasting high energy lithium ion batteries for electric vehicles. This could lead to revolutionary vehicles that can be driven for many years longer than existing cars.

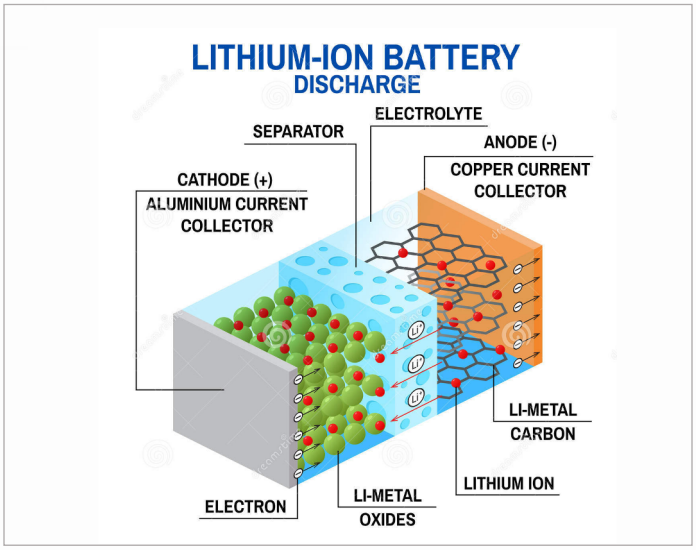

Illustration of the inner workings of a lithium ion battery where this novel cathode material could be used (image from dreamstime.com).

CONTACT:

Grant Brewer
grantb76@vt.edu
540-231-6648