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Nobel Prize for Lithium-Ion Battery: Electric Vehicles to Save our Planet. PAUL CARR, Air Force Research Lab - Hanscom — Whittingham, Goodenough, and Yoshino won the 2019 Nobel Prize for the now ubiquitous Lithium-Ion battery. In 1993, Whittingham's battery at Exxon had an inflammable lithium metal anode and a Lithium Titanium Disulfide cathode. This cathode intercalates Lithium ions between its layered structure, making the battery rechargeable. John Goodenough, who had researched magnetic oxides at the MIT Lincoln Laboratory, replaced the cathode with Lithium Cobalt Oxide, increasing the voltage from 2 to 4 volts. Yoshino used a non-flammable petroleum coke anode. In 1991, Sony commercialized Yoshino's battery for personal electronic devices. The cost of lithium batteries has decreased by more than a factor of six, making electric vehicles (EVs) viable for saving our planet. Electric motors have an order of magnitude lower moving parts and are more than twice as efficient as internal combustion engines. The equivalent gas mileage of EVs is over 100 miles per gallon. EVs have a quiet acceleration of at 0 to 60 miles/hour in less than 5 seconds, making them fun to drive. The EV range is now 250 to 400 miles.

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