

Goodenough lithium battery

Goodenough became a professor at the University of Oxford in 1976 and head of the Inorganic Chemistry Laboratory. That same year, M. Stanley Whittingham had developed the first lithium-ion battery with an anode of metallic lithium and a cathode of lithium ions in between layers of titanium disulfide. Goodenough knew the battery would have a higher voltage if the cathode was a ...

The high capacity battery charges in "minutes rather than hours," according to Maria Helena Braga, professor of engineering at the University of Porto in Portugal, who worked with Goodenough to develop the solid state lithium rechargeable which uses a glass doped with alkali metals as the battery's electrolyte. In addition, the solid state electrolyte is not flammable ...

So within a few years of coming to Oxford, the Goodenough group demonstrated a high-powered lithium-ion battery featuring lithium cobalt oxide as the battery's cathode and graphite as its anode.

With an aim to increase the cell voltage and to develop cathodes with lithium already in them, Goodenough's group began to explore oxide cathodes in the 1980s at the University of Oxford in England.

The element lithium is useful in batteries since it willingly releases electrons. In 1980 John Goodenough developed a lithium battery with a cathode of cobalt oxide, which, at a molecular level, has spaces that can house lithium ions. This cathode gave a higher voltage than earlier batteries.

John B. Goodenough recounts the history of the lithium-ion rechargeable battery. A battery contains one or many identical cells. Each cell stores electric power as chemical energy in two electrodes, the anode and the cathode, which are separated by an electrolyte.

Most all-electric vehicles use lithium-ion batteries. Goodenough was working on a layered sulphide structure that reversibly intercalated (received and stored) huge amounts of lithium in the late 1960s. This led to the idea that these sulphides might make suitable cathodes in a rechargeable lithium battery. Exxon Mobile battery pioneer Stan ...

John Goodenough tells the Nobel Foundation his advice for how to have a long life in research. Moreover, lithium batteries can be used to store energy from solar and wind energy--a critical need for renewable energy technologies that only collect electricity when the sun is out or the wind is blowing.

Goodenough and collaborators claimed they'd developed a non-flammable lithium battery (whose electrolyte was based on a glass powder) that had twice the energy density of traditional lithium-ion ...

1 of 3 | . FILE - Nobel chemistry winner John B. Goodenough poses for the media at the Royal Society in London, Wednesday, Oct. 9, 2019. Goodenough, who shared the 2019 Nobel Prize in chemistry for his work helping develop the lithium-ion battery, transforming technology with rechargeable power for devices ranging



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from cellphones, computers, and ...

John B. Goodenough 1922-2023 UT Mourns Battery Pioneer. John B. Goodenough, professor at The University of Texas at Austin who is known around the world for the development of the lithium-ion battery, died Sunday, June 25 at the age of 100. Goodenough was a dedicated public servant, a sought-after mentor and a brilliant yet humble inventor.

Home to Nobel Prize Winner and Battery Inventor John Goodenough. John B. Goodenough was awarded the 2019 Nobel Prize in Chemistry for his development of the lithium-ion battery. [Learn more.](#) Recent News. Fire-Resistant Sodium Battery Balances Safety, Cost and Performance. February 29, 2024

John B. Goodenough, the Nobel Prize-winning engineer whose contributions to developing lithium-ion batteries revolutionized portable technology, has died. He was 100.

John Goodenough, an American scientist who shared a Nobel Prize for helping create the lithium-ion battery that powered the mobile tech revolution and provides the juice for electric cars, but who ...

Dr. Goodenough, then at Oxford, predicted that lithium-ion batteries would have greater potential if the cathode were made with a different material. He noticed that cobalt oxide was similar in ...

John Bannister Goodenough, groundbreaking materials scientist, died on 25 June at the age of 100. John made seminal contributions to solid-state chemistry, physics, and engineering. In 2019, he shared the Nobel Prize in Chemistry for the development of lithium-ion batteries. His revolutionary insights into the fundamental physical properties of ...

Goodenough's original lithium-cobalt-oxide cathode structure is still used in the lithium-ion batteries found in virtually every smartphone and tablet around the world. His variations on the design are everywhere: batteries using a lithium-manganese-oxide cathode, developed in his lab and refined at Argonne National Laboratory, are now used ...

John B. Goodenough, the scientist who shared the 2019 Nobel Prize in Chemistry for his crucial role in developing the revolutionary lithium-ion battery, the rechargeable power ...

In 2019, at the age of 97, Dr. John B. Goodenough became the oldest person awarded a Nobel Prize. Goodenough won the chemistry prize for the invention of the Lithium-ion (Li-ion) battery stemmed from his 1980 breakthrough that allowed the then-experimental and dangerous Lithium battery chemistry to leave the lab as a safe and versatile new battery type.

That same year, Exxon patented the world's first lithium-based battery, designed by M. Stanley Whittingham (with whom Goodenough shared the Nobel this year). The low weight and large voltage capacity of Whittingham's battery, together with the fact that it was designed to work at room temperature, made it a

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major breakthrough.

John Goodenough, who shared the 2019 Nobel Prize in chemistry for his work developing the lithium-ion battery that transformed technology with rechargeable power for devices ranging from ...

But even though lithium-ion batteries are everywhere -- you can find them in things like smartphones, tablets, laptops, video game consoles, and even electric vehicles -- Goodenough made no royalties for the work he did on the battery, according to The New York Times.

John B. Goodenough, a professor who played a critical role in the development of lithium-ion batteries, died on Sunday, The University of Texas at Austin announced. He was ...

With Goodenough's cathode as a basis, Akira Yoshino created the first commercially viable lithium-ion battery in 1985. Rather than using reactive lithium in the anode, he used petroleum coke, a carbon material that, like the cathode's cobalt oxide, can ...

Goodenough's 1980 battery replaced Whittingham's titanium disulfide in the cathode with lithium cobalt oxide. Johan Jarnestad/The Royal Swedish Academy of Sciences Still, Goodenough had ...

Beginning in 1996, Zaghbi says, Goodenough and Hydro-Qu é bec struck up a partnership to commercialize this lithium battery. Licensees of this technology include the now Chinese-owned A123 and ...

AUSTIN, Texas -- A team of engineers led by 94-year-old John Goodenough, professor in the Cockrell School of Engineering at The University of Texas at Austin and co-inventor of the lithium-ion battery, has developed the ...

AUSTIN, Texas -- A team of engineers led by 94-year-old John Goodenough, professor in the Cockrell School of Engineering at The University of Texas at Austin and co-inventor of the lithium-ion battery, has developed the first all-solid-state battery cells that could lead to safer, faster-charging, longer-lasting rechargeable batteries for handheld mobile ...

Although Goodenough saw a commercial potential of batteries with his LiCoO_2 and LiNiO_2 cathodes and approached Oxford University with a request to patent this invention, Oxford refused.

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