

**Indian Institute of Technology (IIT) Madras developed sodium sulphur battery that operates at room temperature**



**Researchers at Indian Institute of Technology (IIT), Madras**

Since long, researchers have been attempting to develop high efficiency sodium sulphur battery which can run at low temperature. Currently available sodium sulphur batteries work at very high temperature of about 300°C. The conventional batteries use sodium beta alumina electrolyte reduces the diffusion of sodium ions from the anode to the cathode at room temperature by default. It is to increase the diffusion of sodium ions that the temperature is raised to about 300°C which in turn decreases the efficiency of batteries.

A team of researchers at IIT Madras have designed a new sodium sulphur battery operable at room temperature with higher charge storage capacity and 83% retention of capacity even at the end of 500 cycles. The sodium sulphur battery developed at IIT madras has high specific capacity i.e., charge storage capacity of about 1,034mAh per gram, and nearly zero self discharge when not in use.

The work has been published in an esteemed journal *Advanced Materials Interfaces*. In this battery, a glass fibre separator soaked in ether-based electrolyte was used that allows the battery to be operated at room temperature. To prevent the side reactions, a shielding layer made of graphite mixed in a polymer matrix was added near to cathode.

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