

《为什么最近锂离子电池着火事件频发？》

导读:随着近日三星对于存在电池隐患的Galaxy Note 7召回事件引发关注，锂离子电池的安全问题也暴露当前各大公司在追求大电量和小重量电池时遇到的技术瓶颈，究竟是什么造成如今的锂离子电池事故频发？



The burning lithium-ion batteries that caused a massive recall of Samsung Galaxy Note 7 smartphones highlight the conundrum tech companies face as they look for more powerful, lightweight and easily recharged batteries to power myriad consumer devices.

????????????????????Galaxy Note 7??

Lithium-ion batteries burst onto the scene in the early 1990s when they first appeared in hand-held video cameras. Since then they've been used to power everything from jets' electrical systems to cars to the smartphones carried by billions. They've also caused fires and mass recalls, from last year's hoverboard flameout to the grounding of Boeing 787s.

??787s?????
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The batteries are attractive to device makers because they can store relatively large amounts of energy in a small space, said Jason Croy, a physicist in the Electrochemical Energy Storage department at Argonne National Labs

????????????????????????????????Jason Croy??

Lithium-ion batteries are no more inherently dangerous than any other battery, but they are more energy dense. And the more energy stored, the potentially more dangerous a battery becomes, said Croy.

Jason Croy??

At the same time, consumers are continually demanding more power for their devices.

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The batteries work by moving lithium particles between a negative and positive electrode to charge and discharge. To allow those particles to move easily, they're suspended in pressurized cells inside the batteries filled with volatile and flammable chemicals.

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The movement of the particles causes heat as the battery is charged and discharged. If the battery was badly designed or improperly used or installed, that heat can ignite the chemicals, causing flames or explosions.

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Damage to the thin walls that keep the different parts of the battery separate can also lead to short circuits and a corresponding heat buildup.

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While overall very safe, the literally billions of lithium-ion batteries in use worldwide mean there have been several newsworthy failures over time.

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In 2013 fires in two 787 Dreamliner jets caused by a short circuit in lithium ion batteries led Boeing to redesign the plane so that each battery was housed inside an insulated, vented and fireproof steel box.

?2013????????787??

Lithium-ion batteries were also implicated in at least two fires in Tesla electric cars after they ran over road debris that damaged the battery pack under the vehicle. The car company added three underbody shields to the Model S to further protect the electric cars' batteries from impacts.

??Model S????????????????????????????????

