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Unveil the mechanism of solid electrolyte interphase on $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ formed by a novel $\text{NaPF}_6/\text{BMITFSI}$ ionic liquid electrolyte

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ABSTRACT:

Sodium-ion batteries (SIBs) are gaining more attentions due to their potentials to achieve large scale energy storage coupled with relatively low cost. However, typically used organic electrolytes with high flammability and poor thermal stability have impeded the further developments for SIBs in large-scale energy storage. Ionic liquids (ILs), featuring excellent thermal stability, non-flammability and wide electrochemical window have been promising alternative electrolytes for SIBs. Herein, rechargeable $\text{Na}/\text{Na}_3\text{V}_2(\text{PO}_4)_3$ cells with NaPF_6 -incorporated 1-butyl-3-methylimidazolium bis (trifluoromethanesulfonyl) imide BMITFSI IL electrolyte are demonstrated to reduce the flammability of the electrolyte and

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