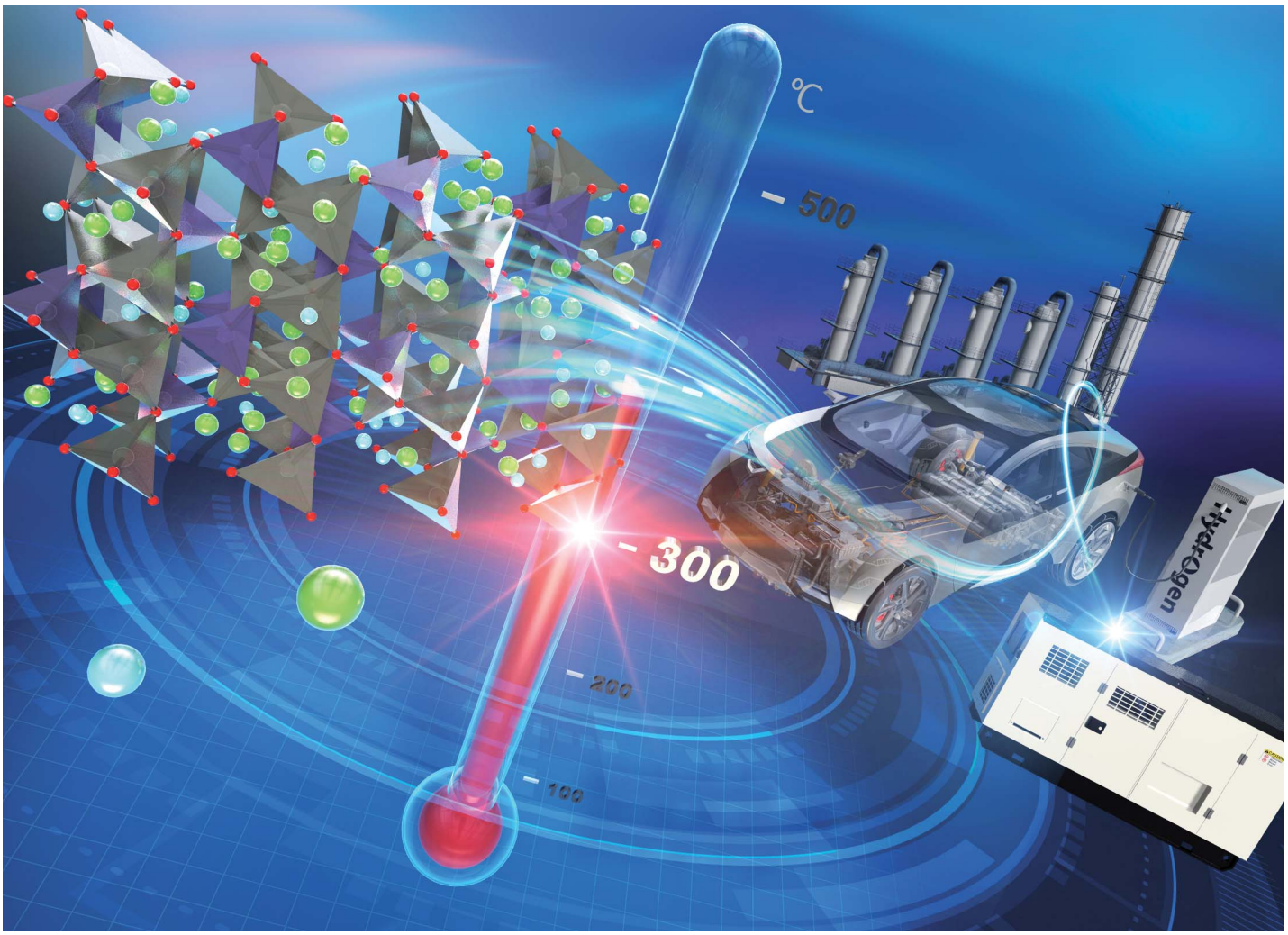
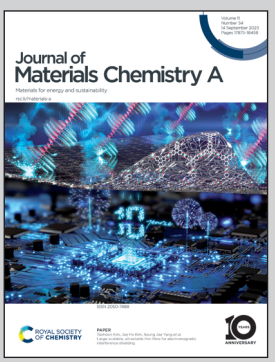


Highlighting a study on intermediate-temperature proton conductivity of Li^+/H^+ ion-exchanged material $(Li,H)_{3.5}Zn_{0.25}GeO_4$ by a group of researchers led by Dr. Toshiaki Matsui from Kyoto University.

Intermediate-temperature proton conductivity of Li^+/H^+ ion-exchanged material $(Li,H)_{3.5}Zn_{0.25}GeO_4$

In this study, we demonstrate the development of novel proton conductors that are operative at intermediate temperatures, especially 300-400 °C, through the simple ion-exchange method. The Li^+/H^+ ion-exchange was conducted for $Li_{14}Zn(GeO_4)_4$ in non-aqueous solutions, and the chemical formula of the resultant sample was determined as $Li_{3.13}H_{0.37}Zn_{0.25}GeO_4$. This material exhibited relatively high electrical conductivity of 39.0 mS cm^{-1} and 5.5 mS cm^{-1} at 300 °C and 200 °C, respectively, in 10% H_2O–90% N_2. Furthermore, the main charge carrier in this electrolyte was identified as a proton from the H/D isotopic exchange study.

As featured in:



See Toshiaki Matsui *et al.*,
J. Mater. Chem. A, 2023, **11**, 18207.

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