

Mechanically reinforced tough ionogels for stretchable electroluminescent devices

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Ionogels are good candidates for flexible electronics owing to their excellent mechanical and electrical properties, including stretchability, high conductivity, and stability. In this study, we prepared conducting ionogels comprising a double-network which was reinforced by the ionic and covalent crosslinking of the network. Based on their excellent mechanical properties and high conductivity, the developed DN ionogels were envisioned as stretchable ionic conductors for extremely stretchable alternating current electroluminescent (ACEL) devices. The ACEL device fabricated with the developed ionogel exhibited stable working operation under an ultra-high elongation as well as severe mechanical deformations such as bending, rolling, and twisting.