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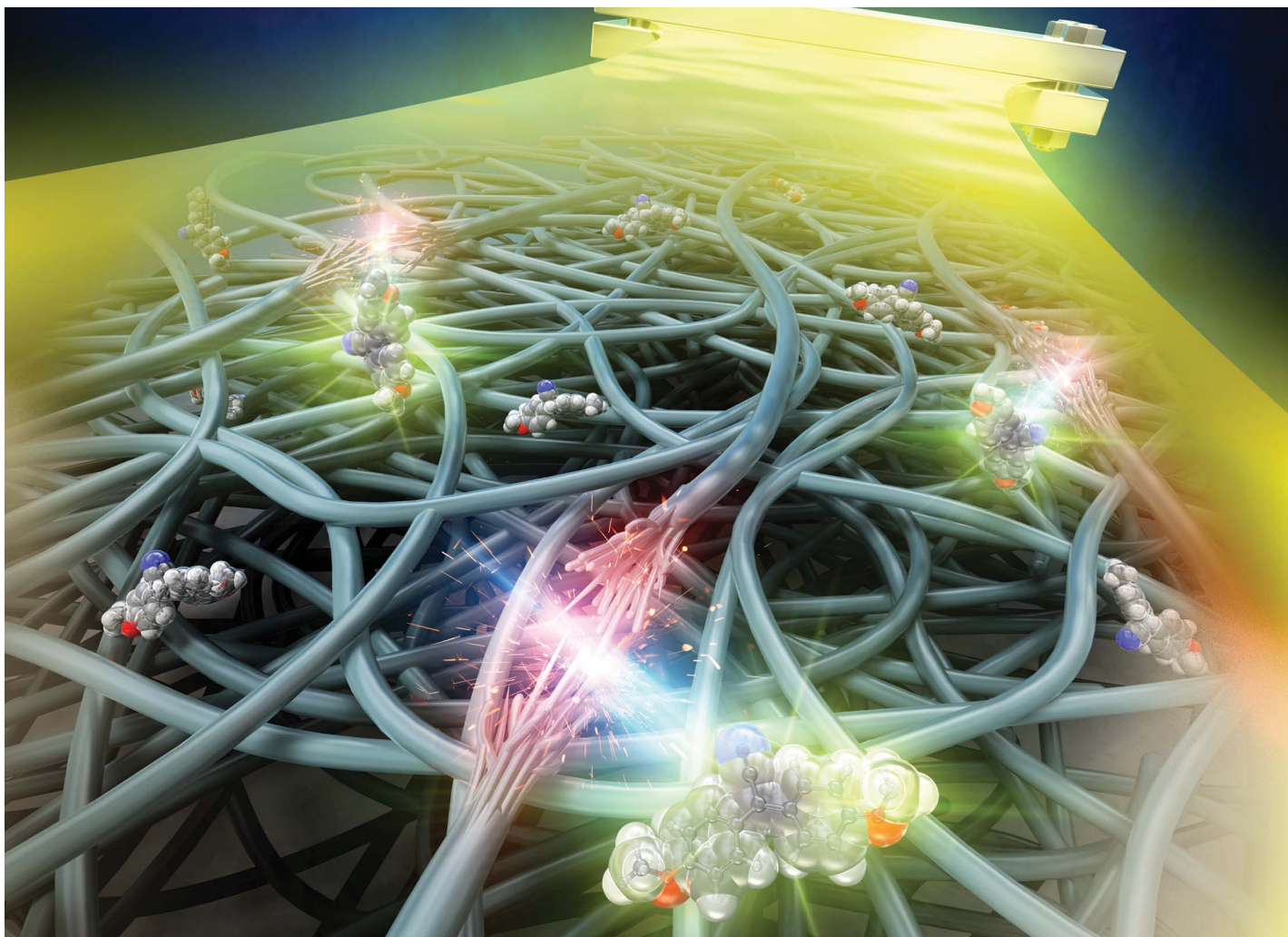
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Showcasing research from Professor Otsuka's laboratory, School of Chemical Science and Engineering, Tokyo Institute of Technology, Japan.

Visualization of mechanochemical polymer-chain scission in double-network elastomers using a radical-transfer-type fluorescent molecular probe

The fracture phenomena in Double-network (DN) elastomers are much less understood than those in DN gels due to the limited scope of visualization methods. Here, we demonstrate the visualization of sacrificial bond cleavage in DN elastomers during elongation by adding a diarylacetonitrile (**DAAN**) derivative as a radical-transfer-type fluorescent molecular probe, which enables the visualization of polymer-chain scission without altering the mechanical properties. A tensile test of the DN elastomers that contain **DAAN** revealed that mechanoradicals are generated from the entire elongated region of the elastomers in the strain-hardening region.

As featured in:



See Takumi Yamamoto *et al.*, *RSC Mechanochem.*, 2024, **1**, 63.