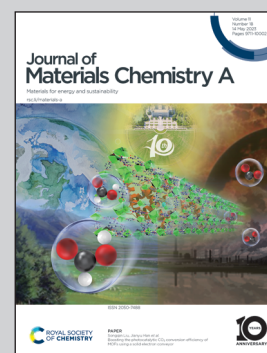


Showcasing research from Los Alamos National Laboratory, New Mexico.

Fluoroalkyl phosphonic acid radical scavengers for proton exchange membrane fuel cells

Radical attack on perfluorosulfonic acid membranes is detrimental to the long-term durability of proton-exchange membrane fuel cells. The radical scavenging efficiency of state-of-the-art cerium antioxidants is limited by their high mobility. Here, we found that fluoroalkyl phosphonic acids can surpass the radical scavenging activity of cerium without the migration issue. Computational studies confirm the radical scavenging mechanism of fluoroalkyl phosphonic acids in an acidic environment. This study implies that fluoroalkyl phosphonic acid incorporation can improve fuel cell durability for heavy-duty applications.

As featured in:



See Yu Seung Kim, Rod Borup *et al.*,
J. Mater. Chem. A, 2023, **11**, 9748.