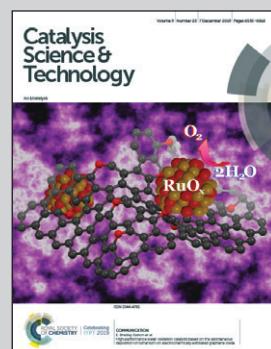


Showcasing research from Pacific Northwest National Laboratory.

Catalytic activation of ethylene C–H bonds on uniform d⁸ Ir(I) and Ni(II) cations in zeolites: toward molecular level understanding of ethylene polymerization on heterogeneous catalysts

Ethylene polymerization is a large-scale catalytic process employed in the manufacture of an abundance of consumer products. In this work, uniform d⁸ metal centers are synthesized and exploited to reveal the long-debated intermediates of ethylene polymerization whereby the oxidative addition of ethylene generates d⁶ metal vinyl hydride complexes. The dehydrogenative coupling of ethylene leads to the formation of butenes and butadiene under mild conditions on the zeolite-supported Ir(I) and Ni(II) catalysts. The findings provide new molecular-level understanding to an important chemical process.

As featured in:



See Nicholas R. Jaegers,
Konstantin Khivantsev,
János Szanyi et al.,
Catal. Sci. Technol., 2019, **9**, 6570.



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