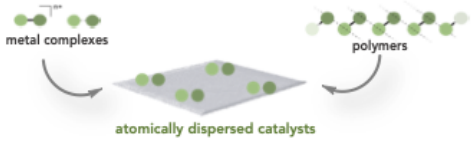
Defined precursors for atomically dispersed catalysts

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Atomically dispersed single, double, and cluster catalysts are a class of catalyst that merges the separability of heterogeneous catalysts with the single-site nature and tunability of homogeneous catalysts.[1],[2] However, the synthesis of atomically dispersed catalysts can be challenging, especially when attempting to control the formation of heterobimetallic or mixed-metal sites.[3]

Here, heterogeneous catalyst design and synthesis is linked with techniques from coordination chemistry to develop routes to install dispersed metal atom sites on support materials.



Mixed palladium-platinum complexes were synthesised and a range of techniques investigated to disperse the PdPt sites across support materials. This resulted in mixed clusters and discrete double atom sites. These features were investigated by high resolution STEM. The catalysts were assessed in Csp^2-O and Csp^2-F hydrogenolysis, and electrochemical reactions.

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[3] Sharon Mitchell, Javier Pérez-Ramirez, *Nat. Rev. Mater.* **2021**, *6*, 969-985.