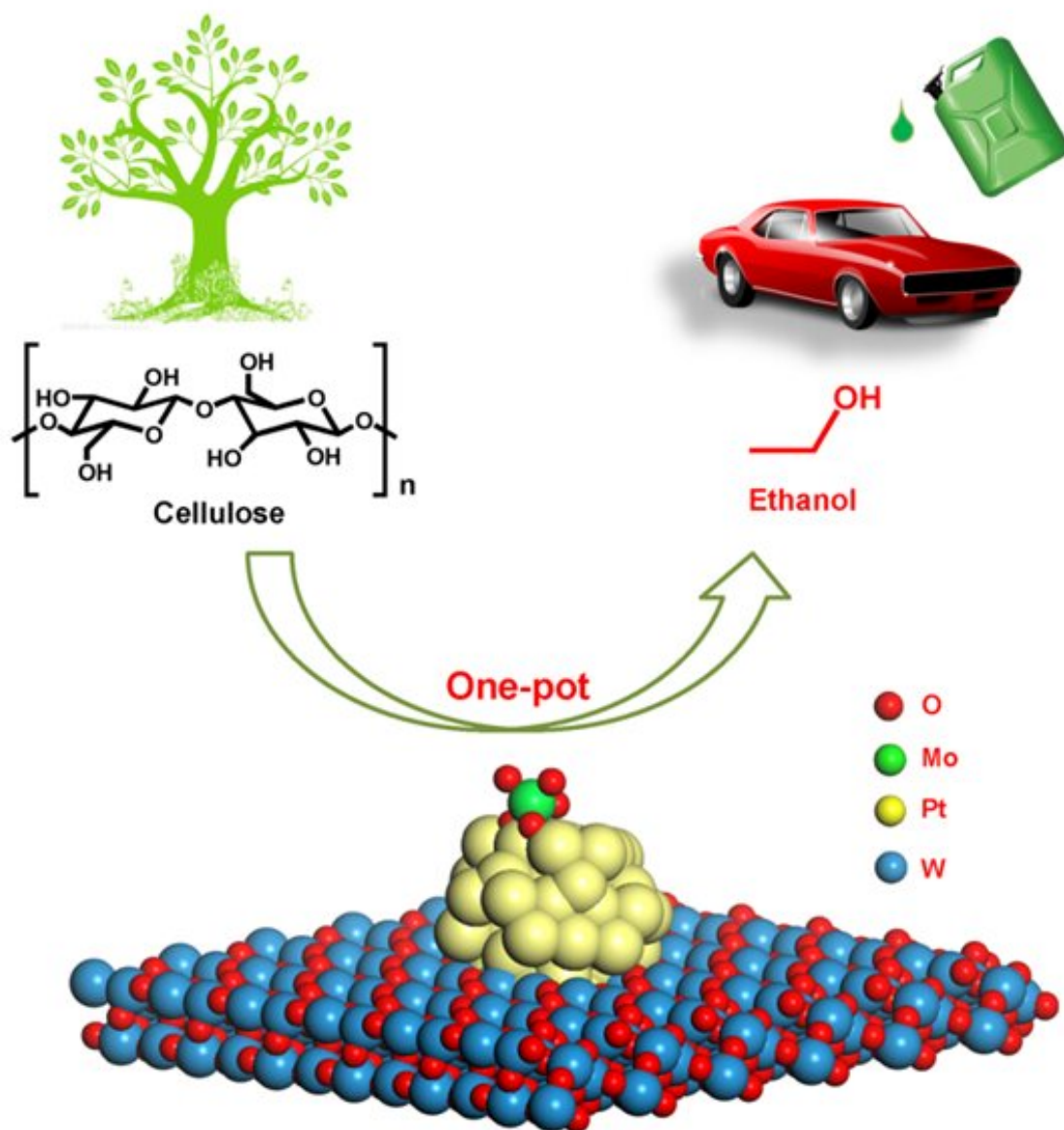


Scientists develop a chemocatalytic approach for one-pot reaction of cellulosic ethanol

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One-pot production of cellulosic ethanol via tandem catalysis over multifunctional Mo/Pt/WO_x catalyst Credit: WANG Aiqin

Scientists at the Dalian Institute of Chemical Physics (DICP) of the Chinese Academy of Sciences have developed a chemocatalytic approach to convert cellulose into ethanol in a one-pot process by using a multifunctional Mo/Pt/WO_x catalyst. This approach opens up an alternative avenue for biofuel production. The findings were published in *Joule*.

Cellulosic ethanol is one of the most important biofuels, yet commercial production is hindered by the low efficiency and high cost of the bioconversion process.

Prof. Wang Aiqin, leader of the research group, and her colleagues developed a chemocatalytic process in which two separate reactions, cellulose conversion to [ethylene glycol](#) and ethylene glycol conversion to ethanol, were coupled in a one-pot reaction by using a multifunctional Mo/Pt/WO_x catalyst, thus achieving an ethanol yield of higher than 40 %.

While noting that the new process can still be made more efficient, Wang said that "in principle" the new process can "overcome the intrinsic limitations on ethanol concentration imposed by the bioconversion process."

"With further improvement in catalyst efficiency and robustness, this one-pot chemocatalytic approach shows great potential in the practical production of [cellulosic ethanol](#) in the future," Wang said.

More information: Yanting Liu et al. Integrated Conversion of

Cellulose to High-Density Aviation Fuel, *Joule* (2019). DOI: [10.1016/j.joule.2019.02.005](https://doi.org/10.1016/j.joule.2019.02.005)

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