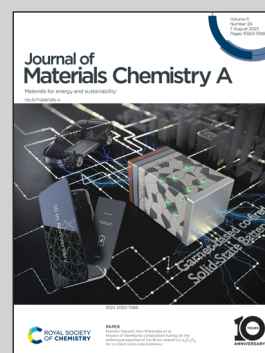**Highlighting a study on high metal loaded Cu(I)N$_3$ single-atom catalysts with superior methane conversion activity and selectivity led by Mr. Hyesung Lee and Prof. Sang-Yup Lee from Yonsei University.**

High metal loaded Cu(I)N$_3$ single-atom catalysts: superior methane conversion activity and selectivity under mild conditions

The direct conversion of methane to liquefied products needs an effective catalyst to cleave the strong C-H bond. We developed an N-doped carbon catalyst, featuring under-coordinated single-atom Cu(I)N$_3$ active centers with ultra-high metal loading of up to 17.7 wt%. This catalyst shows an impressive mass activity of 6.1 mmol/g at 50°C using H$_2$O$_2$ as an oxidant, outperforming previous thermocatalysts while maintaining ~90% selectivity toward C1 liquid products.

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