

Carbene Functionalization of 2D-Mo₂C, Ru, and Graphene on Ru

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Ruthenium, molybdenum and molybdenum carbide are among potential next-generation interconnect materials. (1,2) We will present studies of the chemical modification and or passivation of Ru, graphene covered Ru, and molybdenum carbide surfaces, with a focus on the use of surface carbenes. Experiments on molybdenum carbide show that a robust carbene surface layer can be readily formed through exposure to oxygenates such as ketones. (3) Data will be presented for N-heterocyclic carbene (NHC) functionalization of Ru and graphene covered Ru. (4) The oxygenate approach is suitable for modifying molybdenum carbide in that Mo can extract an oxygen atom to form a surface carbene while the NHC approach is better adapted to the less oxophilic Ru and graphene covered Ru surfaces.

References

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