HIGHLY UNSATURATED PLATINUM AND PALLADIUM CARBENES PtC_3 AND PdC_3 ISOLATED AND CHARACTERIZED IN THE GAS PHASE

DROR M. BITTNER, *School of Chemistry, Newcastle University, Newcastle-upon-Tyne, United Kingdom*; DANIEL P. ZALESKI, *Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, IL, USA*; DAVID PETER TEW, *School of Chemistry, University of Bristol, Bristol, United Kingdom*; NICK WALKER, *School of Chemistry, Newcastle University, Newcastle-upon-Tyne, United Kingdom*; ANTHONY LEGON, *School of Chemistry, University of Bristol, Bristol, United Kingdom*.

Carbenes of platinum and palladium, PtC_3 and PdC_3, were generated in the gas phase through laser vaporization of a metal target in the presence of a low concentration of a hydrocarbon precursor undergoing supersonic expansion. Rotational spectroscopy and *ab initio* calculations confirm that both molecules are linear. The geometry of PtC_3 was accurately determined by fitting to the experimental moments of inertia of twenty-six isotopologues.