

Abstract Submitted  
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**Anion Photoelectron Spectroscopy and Density Functional Investigation of Diniobium-Carbon Clusters**<sup>1</sup> P.A. CLAYBORNE, Virginia Commonwealth University, K.L. KNAPPENBERGER, JR., University of California, Berkeley and Lawrence Berkely National Laboratory, J.U. REVELES, Virginia Commonwealth University, M.A. SOBHY, C.E. JONES, JR., U.U. GUPTA, I. IORDANOV, J. SOFO, A.W. CASTLEMAN, JR., Pennsylvania State University, S.N. KHANNA, Virginia Commonwealth University — Experimental photoelectron and computational results show diniobium-carbon ( $\text{Nb}_2\text{C}_n$ ) clusters to coexist in multiple structural isomers: three-dimensional geometries, planar rings and linear chains. Three-dimensional clusters having up to five carbons are formed preferentially with Nb-Nb bonding, whereas only Nb-C bonding is observed experimentally at six carbons. Clusters consisting of an odd number of atoms are also observed with linear geometries. The larger binary clusters ( $n \geq 7$ ) display properties similar to pure carbon clusters. We provide evidence for niobium substitution of carbon atoms.

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