Synthesis and Crystal Structures of the Polygermanide Ammoniates $K_4Ge_9 \cdot 9\ NH_3$, $Rb_4Ge_9 \cdot 5\ NH_3$ and $Cs_6Ge_{18} \cdot 4\ NH_3$

Christof Suchentrunk[d], Jörg Daniels[a], Mehmet Somer[b], Wilder Carrillo-Cabrera[c], and Nikolaus Korber[d]

[a] Institut für Anorganische Chemie der Universität Bonn, Gerhard-Domagk-Straße 1, D-53121 Bonn, Germany
[b] College of Arts and Sciences, Koc University, Rumelifeneri Yolu, 34450 Sariyer, Istanbul, Turkey
[c] Max-Planck-Institut für Chemische Physik fester Stoffe, Nöthnitzer Straße 40, D-01187 Dresden, Germany
[d] Institut für Anorganische Chemie der Universität Regensburg, D-93040 Regensburg, Germany

Reprint requests to Prof. Dr. N. Korber. Fax: 0941/9431812.
E-mail: nikolaus.korber@chemie.uni-regensburg.de

Z. Naturforsch. **60b,** 277 – 283 (2005); received October 26, 2004

The new compounds $K_4Ge_9 \cdot 9\ NH_3$ and $Rb_4Ge_9 \cdot 5\ NH_3$ were prepared by the extraction of K_4Ge_9 and Rb_4Ge_9 with liquid ammonia and characterized by low temperature X-ray structure analysis. They both contain monocapped square antiprismatic Ge_9^{4-} anions. $Cs_6Ge_{18} \cdot 4\ NH_3$ was prepared by the extraction of $K_2Cs_2Ge_9$ with liquid ammonia in the presence of $[(Bu)_3MeN](Br_2I)$ as an oxidizing agent, and contains a $[Ge_9\text{-}Ge_9]^{6-}$ dimer in which two Ge_9^{4-} anions are linked by a single Ge-Ge bond.

Key words: Zintl Anion, Germanide, Low-Temperature Crystal Structure Analysis, Liquid Ammonia, Solvate Crystal