

UniCat Colloquium

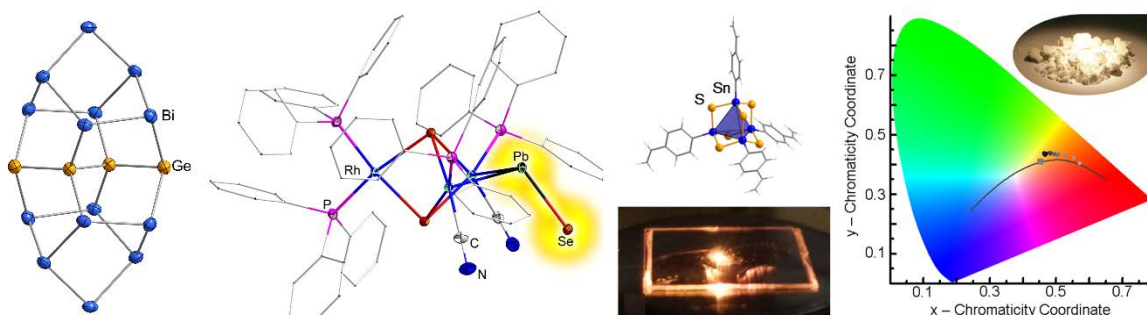
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Multinary Clusters - From Exotic Structures to Illuminating Insights and Applicability

Multinary, non-oxidic metalates as well as metalides have been actively investigated by many research groups over the past decades regarding basic properties as well as their potential use as innovative materials. Recently, binary main group element aggregates proved to be useful synthetic tools for multinary transition metal-main group (semi-)metal clusters.

Reactions of chalcogenidoetrelate ions $[E_{14}x E_{16}y]_q^-$ ($E_{14} = \text{Ge, Sn, Pb}$; $E_{16} = \text{S, Se, Te}$) or the inversely polarized pnictogenitrelide/tetrelide ions $[E_{13/14}x E_{15}y]_q^-$ ($E_{13/14} = \text{Ga, In, Tl}$; $E_{15} = \text{As, Sb, Bi}$) with transition metal (M) compounds lead to the formation of cluster anions like $[\text{Ge}_{24}\text{Sn}_{36}\text{Se}_{132}]_{24}^-$, $[\text{Ge}_4\text{Bi}_{14}]_4^-$, or $[\text{Rh}_3(\text{CN})_2(\text{PPh}_3)_4(\mu_3\text{-Se})_2(\mu\text{-PbSe})]_3^-$. These exhibit unusual geometric and electronic structures that position them in between electron-precise molecules and superatoms. Attachment of organic groups to binary E_{14}/E_{16} units further manipulate their chemical and physical properties, in some cases creating unprecedented non-linear optical properties, such as recently found for $[(4-(\text{CH}_2=\text{CH})-\text{C}_6\text{H}_4\text{Sn})_4\text{S}_6]$.



Wednesday, April 18, 2018 at 5:15 PM

TU Berlin, Institute of Chemistry
Straße des 17. Juni 115, 10623 Berlin

Building C, Lecture Hall **C 264**

Prof. Dr. Schwarz (TUB)

Organizer

Coffee and cake will be served 30 minutes before the lecture. Guests are cordially invited to attend!
Prof. Dr. Matthias Driess - Chair of the Cluster of Excellence UniCat - www.unicat.tu-berlin.de