

Ca₄As₃ – a new binary calcium arsenide

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'Pd₂₀Sn₁₃' revisited: crystal structure of Pd_{6.69}Sn_{4.31}

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Acta Cryst. E71 (2015), 807–809 (DOI: 10.1107/S2056989015011366)

Crystal Structure and Magnetic Properties of SrNi_{2-x}Sb₂

V. Gvozdetskyi, V. Hlukhyy, R. Gladyshevskii, T. F. Fässler

Z. Anorg. Allg. Chem. 641 (2015), 1859–1862 (DOI: 10.1002/zaac.201500518)

Redetermination of the crystal structure of di-(4,7,13,16,21,24-hexaoxa-1,10-diazabicyclo[8.8.8]hexacosane-κ⁸N₂O₆) potassium – tetrapotassiumoctadecagermanide – ethylenediamine (1:1:7), C₂₅H₆₄Ge₉K₃N₉O₆

K. Mayer, M. Giebel, M. M. Bentlochner, W. Klein, T. F. Fässler

Z. Kristallogr. NCS 230 (2015), 286–288 (DOI: 10.1515/ncks-2015-0020)

Synthesis, structure and properties of NaP₇, a phosphorus rich polyphosphide

C. Grotz, M. Köpf, M. Baumgartner, L.-A. Jantke, G. Raudaschl-Sieber, T. F. Fässler, T. Nilges

Z. Anorg. Allg. Chem. 641 (2015), 1395–1399 (DOI: 10.1002/zaac.201400580)

Si-based Clathrates with Partial Substitution by Zn and Ga: K₈Zn_{3.5}Si_{42.5}, Rb_{7.9}Zn_{3.6}Si_{42.4}, and Cs_{8-x}Ga_{8-y}Si_{38+y}

V. Baran, T. F. Fässler

Z. Anorg. Allg. Chem. 641 (2015), 1435–1443 (DOI: 10.1002/zaac.201500147)

The heat capacity and entropy of the lithium silicides Li₁₇Si₄ and Li_{16.42}Si₄ in the temperature range from (2 to 873) K

D. Thomas, M. Zeilinger, D. Gruner, R. Hüttl, J. Seidel, A. U. B. Wolter, T. F. Fässler, F. Mertens
J. Chem. Thermodynamics 85 (2015), 178–190 (DOI: 10.1016/j.jct.2015.01.004)

Bisvinylated [R–Ge₉–Ge₉–R]⁴⁻ Cluster Dimers

C. B. Benda, H. He, W. Klein, M. Somer, T. F. Fässler

Z. Anorg. Allg. Chem. 641 (2015), 1080–1086 (DOI: 10.1002/zaac.201500131)

Crystal structure of Mg_{0.39(2)}NiSn_{1.61(2)} and Mg_{2.61(2)}Ni₄Sn_{3.39(2)} featuring Mg/Sn atom networks with different connections of Ni@Mg/Sn₈ coordination polyhedra

L. Siggelkow, V. Hlukhyy, T. F. Fässler

Z. Anorg. Allg. Chem. 641 (2015), 221–228 (DOI: 10.1002/zaac.201400546)

Linking Deltahedral Zintl Clusters with Conjugated Organic Building Blocks: Synthesis and Characterization of the Zintl triad [RGe₉–CH=CH–CH=CH–GeR]⁴⁻

M. M. Bentlochner, W. Klein, Z. H. Fard, L.-A. Jantke, T. F. Fässler

Angew. Chem. 127 (2015), 3819–3824 (DOI: 10.1002/ange.201410199)

Angew. Chem. Int. Ed. 54 (2015), 3748–3753 (DOI: 10.1002/anie.201410199)

Fully and Partially Lithium-Stuffed Diamond Polytypes with Ag-Ge Structures: Li₂AgGe and Li_{2.53}AgGe₂

A. Henze, V. Hlukhyy, T. F. Fässler

Inorg. Chem. 54 (2015), 1152–1158 (DOI: 10.1021/ic5025263)

Silicon Nanoparticles by the Oxidation of $[Si_4]^{4-}$ - and $[Si_9]^{4-}$ -Containing Zintl Phases and Their Corresponding Yield

B. M. Nolan, T. Henneberger, M. Waibel, T. F. Fässler, S. M. Kauzlarich
Inorg. Chem. 54 (2015), 396–401 (DOI: 10.1021/ic5027398)

On the formation of intermetallic clusters: Titanocene(III)diammin as a versatile reactant towards nonastannide Zintl Clusters

C. B. Benda, M. Waibel, T. F. Fässler
Angew. Chem. 127 (2015), 532–536 (DOI: 10.1002/ange.201407855)
Angew. Chem. Int. Ed. 54 (2015), 522–526 (DOI: 10.1002/anie.201407855)

Reactivity of Liquid Ammonia Solutions of the Zintl Phase $K_{12}Sn_{17}$ towards Mesitylcopper(I) and Phosphinegold(I) Chloride

C. B. Benda, M. Waibel, T. Koechner, T. F. Fässler
Chem. Eur. J. 20 (2014), 16738–16746 (DOI: 10.1002/chem.201404594)

Crystal structure of (4,7,13,16,21,24-hexaoxa-1,10-diazabicyclo[8.8.8]-hexacosane- $\kappa^8N_2O_6$)potassium-di-(1,4,7,10,13,16-hexaoxacyclo-octadecane- κO_6)potassium potassium nonastannide ethylenediamine sesquisolvate, $[K([2.2.21]crypt)][K(18\text{-crown-}6)](2)[KSn9](en)_{1.5}, C_{45}H_{96}K_4N_5O_{18}Sn_9$

H. He, W. Klein, T. F. Fässler
Z. Kristallogr. NCS 229 (2014), 407–410 (DOI: 10.1515/ncks-2014-9039)

Alkali metal extraction reactions with the silicides $Li_{15}Si_4$ and Li_3NaSi_6 : amorphous Si versus allo-Si

M. Zeilinger, L.-A. Jantke, L. M. Scherf, F. J. Kiefer, G. Neubüser, L. Kienle, A. J. Karttunen, S. Konar, U. Häussermann, T. F. Fässler
Chem. Mater. 26 (2014), 6603–6612 (DOI: 10.1021/cm503371e)

The Reduction of Pyridine by $K_{12}Si_{17}$ to the 4,4'-Bipyridine Radical Anion $[C_{10}H_8N_2]^{1-}$: Crystal Structure and Spectroscopic Characterization of $[K([2.2.2]crypt)][C_{10}H_8N_2]$

C. B. Benda, T. F. Fässler
Z. Naturforsch. 69b (2014), 1119–1123 (DOI: 10.5560/ZNB.2014-4213)

Vibrational dynamics of the host framework in Sn clathrates

B. M. Leu, M. Sturza, M. Y. Hu, D. Gosztola, V. Baran, T. F. Fässler, E. E. Alp
Phys. Rev. B 90 (2014), 104304 (DOI: 10.1103/PhysRevB.90.104304)

Endohedrally Filled $[Ni@Sn_9]^{4-}$ and $[Co@Sn_9]^{5-}$ Clusters in the Neat Solids $Na_{12}Ni_{1-x}Sn_{17}$ and $K_{13-x}Co_{1-x}Sn_{17}$: Crystal Structure and ^{119}Sn Solid-State NMR Spectroscopy

V. Hlukhyy, S. Stegmaier, L. van Wüllen, T. F. Fässler
Chem. Eur. J. 20 (2014), 12157–12164 (DOI: 10.1002/chem.201402318)

Metal-Centered Zintl Ions Isolated by Direct Extraction from Endohedral Intermetallic Precursor: $[Co@Sn_9]^{4-}$ and $[Co_2@Sn_{17}]^{5-}$

H. He, W. Klein, L.-A. Jantke, T. F. Fässler
Z. Anorg. Allg. Chem. 640 (2014), 2864–2870 (DOI: 10.1002/zaac.201400379)

Synthesis, structure and chemical bonding in $CaCoSi$

A. V. Hoffmann, V. Hlukhyy, T. F. Fässler
Z. Anorg. Allg. Chem. (2014), 2881–2888 (DOI: 10.1002/zaac.201400356)

Structure and vibrational analyses of LiP_{15}

N. Eckstein, L.-A. Jantke, T. F. Fässler, J. Mink, M. Drees, T. Nilges
Eur. J. Inorg. Chem. (2014), 5135–5144 (DOI: 10.1002/ejic.201402383)

A combined metal-halide/metal flux syntheses route towards type-I clathrates - Crystal structures and thermoelectric properties of $A_8Al_8Si_{38}$ ($A = K$, Rb , and Cs)

V. Baran, A. Senyshyn, A. J. Karttunen, A. Fischer, W. Scherer, G. Raudaschl-Sieber, T. F. Fässler
Chem. Eur. J. 20 (2014), 15077–15088 (DOI: 10.1002/chem.201403416)

Bi-Zn bond formation in liquid ammonia solution: $[Bi\text{-Zn}\text{-}Bi]^{4-}$ – a linear polyanion iso (valence) electronic to CO_2

C. B. Benda, T. Köchner, R. Schäper, S. Schulz, T. F. Fässler
Angew. Chem. 126 (2014), 9090–9094 (DOI: 10.1002/ange.201404343)
Angew. Chem. Int. Ed. 53 (2014), 8944–8948 (DOI: 10.1002/anie.201404343)

Thermochemistry, Morphology, and Optical Characterization of Germanium Allotropes

J. V. Zaikina, E. Muthuswamy, K. I. Lilova, Z. M. Gibbs, M. Zeilinger, G. J. Snyder,
T. F. Fässler, A. Navrotsky, S. M. Kauzlarich
Chem. Mater. 26 (2014), 3263–3271 (DOI: 10.1021/cm5010467)

*Structural and Thermodynamic Similarities of Phases in the Li–Tt (Tt = Si, Ge) Systems:
Redetermination of the Lithium-Rich Side of the Li–Ge Phase Diagram and Crystal Structures of $Li_{1-x}Si_{4.0-x}Ge_x$ for $x = 2.3$, 3.1 , 3.5 , and 4 as well as $Li_{4.1}Ge$*

M. Zeilinger T. F. Fässler
Dalton Trans. 43 (2014), 14959–14970 (DOI: 10.1039/C4DT00743C)

Von salzartigen Metallen zu maßgeschneiderten Nanoteilchen

S. Dehnen, T. F. Fässler
Spektrum der Wissenschaft, 3 (2014), 72–81

(1,4,7,10,13,16-Hexaoxacyclooctadecane- κ^6)bis(tetrahydrofuran- κO)potassium bis[(1,2,3,4- η)-anthracene]cobalt(–I) tetrahydrofuran monosolvate

H. He, W. Klein, T. F. Fässler
Acta Cryst. E70 (2014), m9–m10 (DOI: 10.1107/S1600536813032510)

$Li_{18}Na_2Ge_{17}$ – A Compound Demonstrating Cation Effects on Cluster Shapes and Crystal Packing in Ternary Zintl Phases

L. M. Scherf, M. Zeilinger, T. F. Fässler
Inorg. Chem. 53 (2014), 2096–2101 (DOI: 10.1021/ic4027046)

$[Bi_4]^{6-}$ – The Zintl Anion with the Highest Charge per Atom Obtained from Solution

C. B. Benda, T. F. Fässler
Z. Anorg. Allg. Chem. 640 (2014), 40–45 (DOI: 10.1002/zaac.201300464)

Semiconducting Clathrates Meet Gas Hydrates: $Xe_{24}[Sn_{136}]$

A. J. Karttunen, T. F. Fässler
Chem. Eur. J. 20 (2014), 6693–6698 (DOI: 10.1002/chem.201402251)

C_{60}^{3-} versus C_{60}^{4-}/C_{60}^{2-} – Synthesis and Characterization of Five Salts Containing Discrete Fullerene Anions

M. B. Boeddinghaus, W. Klein, B. Wahl, P. Jakes, R. A. Eichel, T. F. Fässler
Z. Anorg. Allg. Chem. 640 (2014), 701–712 (DOI: 10.1002/zaac.201300607)

Probing the Zintl-Klemm Concept: A combined experimental and theoretical charge density study of the Zintl phase $CaSi$.

I. M. Kurylyshyn, T. F. Fässler, A. Fischer, C. Hauf, G. Eickerling, M. Presnitz, W. Scherer
Angew. Chem. 126 (2014), 3073–3077 (DOI: 10.1002/ange.201308888)
Angew. Chem. Int. Ed. 53 (2014), 3029–3032 (DOI: 10.1002/anie.201308888)

Revision of the Li₁₃Si₇ structure

M. Zeilinger, T. F. Fässler

Acta Cryst. E69 (2013), i81–i82 (DOI: 10.1107/S1600536813029759)

Synthesis and Crystal Structure of a Salt Containing $\infty^1\{Zn[trans-\mu_2(\eta^3:\eta^3-Ge_9)]\}^{2-}$ Anions – A new Polymer with Ge₉ Zintl Clusters Bridged by Zn Atoms

C. B. Benda, R. Schäper, S. Schulz, T. F. Fässler

Eur. J. Inorg. Chem. (2013), 5964–5968 (DOI: 10.1002/ejic.201301122)

NaRb₇(Si_{4-x}Ge_x)₂ - Soluble Zintl Phases Containing Heteroatomic Tetrahedral [Si_{4-x}Ge_x]⁴⁻ Clusters

M. Waibel, O. Pecher, B. Mausolf, F. Haarmann, T. F. Fässler

Eur. J. Inorg. Chem. 2013 (2013), 5541–5546 (DOI: 10.1002/ejic.201300943b)

Revision of the Li–Si Phase Diagram: Discovery and Single Crystal X-ray Structure Determination of the High Temperature Phase Li_{4.11}Si

M. Zeilinger, I. M. Kurylyshyn, U. Häussermann, T. F. Fässler

Chem. Mater. 25 (2013), 4623–4632 (DOI: 10.1021/cm4029885)

Stabilizing the Phase Li₁₅Si₄ through Lithium-Aluminum Substitution in Li_{15-x}Al_xSi₄ (0.4 < x < 0.8) – Single Crystal X-ray Structure Determination of Li₁₅Si₄ and Li_{14.37}Al_{0.63}Si₄

M. Zeilinger, V. Baran, L. van Wüllen, U. Häussermann, T. F. Fässler

Chem. Mater. 25 (2013), 4113–4121 (DOI: 10.1021/cm402721n)

Synthesis of Large Single Crystals and Thermoelectrical Properties of the Type-I Clathrate K₈Zn₄Sn₄₂

V. Baran, A. Fischer, W. Scherer, T. F. Fässler

Z. Anorg. Allg. Chem. 639 (2013), 2125–2128 (DOI: 10.1002/zaac.201300383)

Synthesis, structure and chemical bonding of CaFe_{2-x}RhxSi₂ (x = 0, 1.32, and 2) and SrCo₂Si₂

V. Hlukhy, A. V. Hoffmann, T. F. Fässler

J. Solid State Chem. 203 (2013), 232–239 (DOI: 10.1016/j.jssc.2013.04.033)

Structural Principles and Thermoelectric Properties of Polytypic Group 14 Clathrate-II Frameworks

A. J. Karttunen, T. F. Fässler

ChemPhysChem. 14 (2013), 1807–1817 (DOI: 10.1002/cphc.201300133)

First Incorporation of the Tetrahedral [Sn₄]⁴⁻ Cluster into a Discrete Solvate Na₄[Sn₄] · (NH₃)₁₃ from Solutions of Na₄Sn₄ in Liquid Ammonia

M. Waibel, T. F. Fässler

Z. Naturforsch. 68b (2013), 732–734 (DOI: 10.5560/ZNB.2013-3087)

LiBSi₂: A Tetrahedral Semiconductor Framework from Boron and Silicon Atoms Bearing Lithium Atoms in the Channels

M. Zeilinger, L. van Wüllen, D. Benson, V. F. Kranak, S. Konar, T. F. Fässler, U. Häussermann

Angew. Chem. 125 (2013), 6094–6098 (DOI: 10.1002/ange.201301540)

Angew. Chem. Int. Ed. 52 (2013), 5978–5982 (DOI: 10.1002/anie.201301540)

Single crystal growth and thermodynamic stability Li₁₇Si₄

M. Zeilinger, D. Benson, U. Häussermann, T. F. Fässler

Chem. Mater. 25 (2013), 1960–1967 (DOI: 10.1021/cm400612k)

Tetrahedral Framework Structures: Polymorphic Phase Transition with Reorientation of Hexagonal Helical Channels in the Zintl Compound Na₂ZnSn₅ and its Relation to Na₅Zn_{2+x}Sn_{10-x}

S. Stegmaier, S.-J. Kim, A. Henze, T. F. Fässler

J. Am. Chem. Soc. 135 (2013), 10654–10663 (DOI: 10.1021/ja401043b)

From one to three dimensions – corrugated ${}^1\infty$ [NiGe] ribbons as building block in alkaline-earth metal Ae/Ni/Ge phases. Crystal structure and chemical bonding in AeNiGe (Ae = Mg, Sr, Ba)
V. Hlukhyy, L. Siggekow, T. F. Fässler
Inorg. Chem. 52 (2013), 6905–6915 (DOI: 10.1021/ic302681t)

Mixed Si/Ge Nine-Atom Zintl Clusters: ESI Mass Spectrometric Investigations and Single-Crystal Structure Determination of Paramagnetic $[Si_{9-x}Ge_x]^{3-}$
M. Waibel, T. F. Fässler
Inorg. Chem. 52 (2013), 5861–5866 (DOI: 10.1021/ic302802h)

Guest host interaction and low energy host structure dynamics in tin clathrates
S. Christensen, L. Bjerg, A. Kaltzoglou, F. Juranyi, T. F. Fässler, T. Unruh, M. Christensen
J. Appl. Phys. 113 (2013), 084902 (DOI: 10.1063/1.4793081)

Lithium-stuffed Diamond Polytype Zn-Tt Structures (Tt = Sn, Ge): The Two Lithium-Zinc-Tetrelides $Li_3Zn_2Sn_4$ and Li_2ZnGe_3
S. Stegmaier, T. F. Fässler
Inorg. Chem. 52 (2013), 2809–2816 (DOI: 10.1021/ic3011037)

The New Alkali Cyclotrisilicate $Cs_8[Si_6O_{16}]$
V. Hlukhyy, T. F. Fässler
Z. Anorg. Allg. Chem. 639 (2013), 231–233 (DOI: 10.1002/zaac.201200355)