

# CARBORANE AND CARBORANE-RELATED PUBLICATIONS APPEARING IN 2023

## GENERAL

### Bridges and Vertices in Heteroboranes

Stuart A. Macgregor \* and Alan J. Welch \*, *Molecules* **2023**, *28*, 190

### Trivalent Polyhedra as Duals of Borane Deltahedra: From Molecular Endohedral Germanium Clusters to the Smallest Fullerenes

R. Bruce King, *Molecules* **2023**, *28*, 496

### Chemistry of CS<sub>2</sub> and CS<sub>3</sub> Bridged Decaborane Analogues: Regular Coordination Versus Cluster Expansion

Ketaki Kar, Suvam Saha, Rahul Maganbhai Parmar, Arindam Roy, Marie Cordier, Thierry Roisnel, and Sundargopal Ghosh\*, *Molecules* **2023**, *28*, 998

### Neighborhood Path Complex for the Quantitative Analysis of the Structure and Stability of Carboranes

Liu, J.; Chen, D; (...); Wu, J., *J. Computat. Biophys. Biochem.* **2023**, *22*, 503

### Nature of Interactions between Boron Clusters: Extended Delocalization and Retention of Aromaticity Post-Oxidation

Sohail H. Dar, Pattath D. Pancharatna\*, and Musiri M. Balakrishnarajan\*, *Inorg. Chem.* **2023**, *62*, 7566

### Redox-active carborane clusters in bond activation chemistry and ligand design

Bryce C. Nussbaum, Amanda L. Humphries, Gayathri B. Gange and Dmitry V. Peryshkov\*, *Chem. Commun.* **2023**, 59, 9918

### Metallaboranes and metallaheteroboranes: An overview of single-cage and condensed polyhedral clusters

Chandan Nandi, Ketaki Kar, Arindam Roy, and Sundargopal Ghosh\*, *Inorg. Chem. in India* **2023**, *81*, 41 (review)

### Generalized Octet Rule with Fractional Occupancies for Boron

Shaogang Xu, Changchun He, Yujun Zhao, Xiaobao Yang, and Hu Xu, *J. Am. Chem. Soc.* **2023**, *145*, 25003

## CARBORANES

### o-Carborane

#### A Method for Highly Selective Halogenation of o-Carboranes and m-Carboranes

Wen Lu, Yanxuan Wu, Yan-Na Ma, \* Feijing Chen, and Xuenian Chen\*, *Inorg. Chem.* **2023**, *62*, 885

#### Regiodivergent metal-catalyzed B(4)- and C(1)-selenylation of o-carboranes

Kyungsup Lee, Jordan L. Harper, Tae Hyeon Kim, Hee Chan Noh, Dongwook Kim, Paul Ha-Yeon Cheong\*, and Phil Ho Lee\*, *Chem. Sci.* **2023**, *14*, 643

#### Diverse Reactions of o-Carborane-Fused Silylenes with C≡E (E = C, P) Triple Bonds

Rui Liu, Yanyan Tang, Chenfeng Wang, Zheng-Feng Zhang, Ming-Der Su,\* and Yan Li\*, *Inorg. Chem.* **2023**, *62*, 1095

#### Boron-Cluster Embedded Necklace-Shaped Nano hoops

Miao Zhu, Qin Zhou, He Cheng, Ye Sha,\* Vladimir I. Bregadze, HongYan,\* ZheSun,\* and Xiang Li\*, *Angew. Chem. Int. Ed.* **2023**, *62*, e202213470

#### How substituents at boron atoms affect the CH-acidity and the electron-withdrawing effect of the ortho-carborane cage: A close look on the <sup>1</sup>H NMR spectra

I. B. Sivaev, S. A. Anufriev, and A. V. Shmalko, *Inorg. Chim. Acta* **2023**, *547*, 121339

#### Cu(OTf)<sub>2</sub>/NBS Promoted Cyclization of 1-Cinnamyl Alcohol-o-Carboranes: An Efficient Approach for Synthesis of o-Carboranes Substituted Oxetanes

Cai-Yan Zhang, Ke Cao,\* Han-Bo Yang, Linhai Jiang, Bo Li, and Junxiao Yang, *Eur. J. Org. Chem.* **2023**, *26*, e202201275

#### A Computational Experiment Introducing Undergraduates to Geometry Optimizations, Vibrational Frequencies, and Potential Energy Surfaces

Matthew D. Hanson,\* Daniel P. Miller, Cholavardhan Kondeti, Adam Brown, Eva Zurek, and Scott Simpson\*, *J. Chem. Ed.* **2023**, *100*, 921

#### Chelating Bis-silylenes As Powerful Ligands To Enable Unusual Low-Valent Main-Group Element Functions

Shenglai Yao, Artemis Saddington, Yun Xiong, and Matthias Driess\*, *Acc. Chem. Res.* **2023**, *56*, 475

**Ruthenium-Catalyzed Selective B(4)-H Amidation of *o*-Carboranes with Dioxazolones**

HeejinYang, Hee ChanNoh, and Phil Ho Lee\*, *Asian J. Org. Chem.* **2023**, e202200630

**Iron-Catalyzed Selective B–H Activation for 4/5-fold Methylation and Arylation of Carboranes**

Peng Zhou, Yu Chen, and Zuowei Xie\*, *ACS Catal.* **2023**, 12, 8761

**How the Position of Substitution Affects Intermolecular Bonding in Halogen Derivatives of Carboranes: Crystal Structures of 1,2,3- and 8,9,12-Triiodo- and 8,9,12-Tribromo *ortho*-Carboranes**

Kyrill Yu. Suponitsky, Sergey A. Anufriev, and Igor B. Sivaev\*, *Molecules* **2023**, 28, 875

**Carborane-thiol protected copper nanoclusters: stimuli-responsive materials with tunable phosphorescence**

Arijit Jana, Madhuri Jash, Wakeel Ahmed Dar, Jayoti Roy, Papri Chakraborty, Ganesan Paramasivam, Sergei Lebedkin, Kaplan Kirakci, Sujan Manna, Sudhadevi Antharjanam, Jan Machacek, Monika Kucerakova, Sundargopal Ghosh, Kamil Lang, Manfred M. Kappes\*, Tomas Base\*, and Thalappil Pradeep\*, *Chem. Sci.* **2023**, 14, 1613

**On the Simulation of Orbital and Spectral Characteristics of Metallocenes**

G. V. Loukovaa\* and A. A. Milov, *High Energy Chem.* **2022**, 56, 511

**Encapsulation Studies on *closo*-Dicarbadodecaborane Isomers in Neutral Tetrahedral Palladium(II) Cages**

Meghamala Sarkar, Evamarie Hey-Hawkins\*, and Ramamoorthy Boomishankar\*, *Inorg. Chem.* **2023**, 62, 4035

**Iridium-catalyzed selective amination of B(4)–H for the synthesis of *o*-carborane-fused indolines**

Cai-Yan Zhang, Ke Cao\*, Dechun Liu\*, Han-Bo Yang, Chao-Chao Teng, Bo Li, and Junxiao Yang, *Dalton Trans.* **2023**, 52, 2933

**Synthesis of Organotantalum Alkyne Complexes [ $\eta^5\text{-}\sigma\text{-Me}_2\text{C}(\text{C}_5\text{H}_4)(\text{C}_2\text{B}_{10}\text{H}_{10})\text{TaMe}(\eta^2\text{-R}^1\text{C}\equiv\text{CR}^2)$ ] and Their Reactions with Unsaturated Molecules**

Jingting Yang and Zuowei Xie\*, *Organometallics* **2023**, 42, 1347

**Synthesis, Structure, and Reactivity of Rare-Earth Metal Carboryne Complexes**

Liping Guo, Shaowu Wang\*, and Zuowei Xie\*, *Organometallics* **2023**, 42, 581

**B(9)-OH-*o*-Carboranes: Synthesis, Mechanism, and Property Exploration**

Yan-Na Ma\*, Huazhan Ren, Yanxuan Wu, Na Li, Feijing Chen, and Xuenian Chen\*, *J. Am. Chem. Soc.* **2023**, 145, 7331

**Direct B–H Functionalization of Icosahedral Carboranes via Hydrogen Atom Transfer**

Hongyuan Ren, Ping Zhang, Jingkai Xu, Wenli Ma, Deshuang Tu\*, Chang-sheng Lu\*, and Hong Yan\*, *J. Am. Chem. Soc.* **2023**, 145, 7638

**Catalytic asymmetric synthesis of carboranylated diols bearing two adjacent stereocenters located at the  $\alpha,\beta$ -position of *o*-carborane cage carbon**

Hui-Xin Duan, Hao-Nan Li, Yong Yang, Xiao-Jun Wu, and You-Qing Wang\*, *Dalton Trans.* **2023**, 52, 4077

**Multistep synthesis and X-ray structures of carboxyl-terminated hybrid iron(II) phthalocyaninatoclatrochelates and their postsynthetic transformation into polytopic carboranyl-containing derivatives**

Alexander S. Chuprin, Alexander A. Pavlov, Anna V. Vologzhanina, Pavel V. Dorovatovskii, Anton V. Makarenkov, Valentina A. Ol'shevskaya, Semyon V. Dudkin, and Yan Z. Voloshin\*, *Dalton Trans.* **2023**, 52, 3884

**The Chemistry of [1,1'-bis(*o*-Carboranyl)] Borane  $\eta^2\text{-}\sigma$ -Silane Adduct**

Mohanad Diab Kuldeep Jaiswal, Deependraawari, and Roman Dobrovetsky\*, *Israel J. Chem.* **2023**, 63, 7

**“Cage Walking” Synthetic Strategy for Unusual Unsymmetrical Supramolecular Cages**

Xin-Ran Liu, Peng-Fei Cui, Shu-Ting Guo, Yue-Jian Lin, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, 145, 8569

**Recent Advances in Transition Metal-Catalyzed B–H Bond Activation for Synthesis of *o*-Carborane Derivatives with B-Heteroatom Bond**

Hairui Jia<sup>a,b</sup>, Zaozao Qiu, *Chinese J. Org. Chem.* **2023**, 43, 1045

**Investigation of the Substitution Site Effect on *o*-Carborane-Based Chromophores by Anthracene Introduction at the B(3) Position**

Junki Ochi, Kazuo Tanaka, and Yoshiki Chujo, *Bull. Chem. Soc. Japan* **2023**, 96, 98

**Construction of a Diverse Range of Boron Heterocycles via Ring Expansion of a Carboranyl-Substituted 9-Borafluorene**  
Tobias Bischof, Lukas Beßler, JIvo Krummenacher, Leon Erhard, Holger Braunschweig\*, and Maik Finze\*, *Chem. Eur. J.* **2023**, e202300210

**Tuning of the height of energy barrier between locally-excited and charge transfer states by altering the fusing position of o-carborane in phenylanthracene**

Junki Ochi, Takumi Yanagihara, Kazuo Tanaka\* and Yoshiki Chujo, *Phys. Chem. Chem. Phys.* **2023**, 25, 11839

**Photodimerization of anthracene- and carborane-bearing polymers obtained by ring opening metathesis polymerization**

Gizem Kahraman, Burcu Durçak, Nergis Arsu, Evamarie Hey-Hawkins, and Tarik Eren, *Eur. Polym. J.* **2023**, 189, 111946

**Combining ligand-enhanced backdonation and steric shielding to stabilize a mono-substituted Au(I) carbene**

David Vasseur, Karinne Miqueu, and Didier Bourissou\*, *Chem. Commun.* **2023**, 59, 5387

**Accurate single crystal and gas-phase molecular structures of acenaphthene: a starting point in the search for the longest C–C bond**

Yury V. Vishnevskiy\*, Arseniy A. Otyotov, Jan-Hendrik Lamm, Hans-Georg Stammler, Georgiy V. Girichevc, and Norbert W. Mitzel\*, *Phys. Chem. Chem. Phys.* **2023**, 15, 11464

**BODIPY derivatives modified with carborane clusters: synthesis, characterization and DFT studies**

Andrei V. Zaitsev, Sergey S. Kiselev, Alexander F. Smol'yakov, Yury V. Fedorov, Elena G. Kononova, Yurii A. Borisova, and Valentina A. Ol'shevskaya\*, *Org. Biomol. Chem.* **2023**, 21, 4084

**A strategy for regioselective B–H functionalization of o-carboranes via base metal catalysis**

Jie Zhang and Zuowei Xie\*, *Org. Chem. Frontiers* **2023**, 10, 3074

**Effect of Heat and Plasma Treatment on Carboranethiol Self-Assembled Monolayers on Copper**

Rupak Thapa, Lauren M. Dorsett, Raja Sekhar Bale, Suhaib Malik, Stefan C. Wagner, Derrick Bailey, Jacob Stoehr, Anthony N. Caruso, Jeffery D. Bielefeld, Sean W. King, and Michelle M. Paquette\*, *J. Phys. Chem. C* **2023**, 127, 11138

**Synthesis of o-carboranyl-acyl-substituted diazo compounds from B(4)-acylmethyl carboranes and 2-azido-1,3-dimethylimidazolium hexafluorophosphate**

Chanyoung Maeng, Gi Hoon Ko, Kyungsup Lee, Hee Chan Noh, Dae Su Park, and Phil Ho Lee, *Bull. Korean Chem. Soc.* **2023**, 1

**Reactions of 5-(1,2-Dicarbadoecaboran-1-yl)-3-(2-pyridyl)-1,2,4-triazines with Dienophiles**

M. I. Valieva, A. Rammohan, E. S. Starnovskaya, E. A. Kudryashova, A. P. Krinochkin, D. S. Kopchuk, G. V. Zyryanov, and O. N. Chupakhin, *Russian Journal of General Chemistry* **2023**, 93, 500

**Persistent and Predominantly Localized Boron Radical from the Reduction of a Three-Dimensional Analogue of NHC-Stabilized Borafluorenum**

Libo Xiang, Junyi Wang, IvoKrummenacher, Krzysztof Radacki, Holger Braunschweig, Zhenyang Lin, and Qing Ye\*, *Chem. Eur. J.* **2023**, e202301270

**Synthesis, properties and application of o-carborane-based  $\pi$ -conjugated macrocycles**

Qi Qu, Meigui Fu, Caixia Lin, Yanhou Geng\*, Yuanming Li \*, and Yaofeng Yuan\*, *Org. Chem. Frontiers* **2023**, 10, 3293

**Synthesis, Structure, and Spectroscopy of the Biscarboranyl Stannylenes (bc)Sn-THF and  $K_2[(bc)Sn]_2$  (bc = 1,1'(ortho-Biscarborane)) and Dibiscarboranyl Ethene (bc)CH=CH(bc)**

Alice C. Phung, James C. Fettinger, and Philip P. Power\*, *Organometallics* **2023**, 42, 1649; Correction published in *Organometallics* **2023**, 42, 2319

**Intramolecularly Stabilized o-Carboranyl Aluminum Complexes: Synthesis, Characterization, and X-ray Structural Studies.**

Honglae Sohn and Jong-Dae Lee, *Crystals* **2023**, 13, 877

**Examining the reactivity of tris(ortho-carboranyl) borane with Lewis bases and application in frustrated Lewis pair Si–H bond cleavage**

Kanika Vashisth, Sanjay Dutta, Manjur O. Akram, and Caleb D. Martin\*, *Dalton Trans.* **2023**, 52, 9639

**Combining Two Types of Boron in One Molecule (To the 60th Anniversary of the First Synthesis of Carborane)**

Igor B. Sivaev, *Chemistry* **2023**, 5, 834 (review)

**Room-Temperature Aerobic C–CN Bond Activation in Nickel(II) Cyanomethyl Dicarboranyl Complex**

Mohammad Jahirul Islam, Kyoung Chul Park, Olivia M. Manley, Mark D. Smith, Thomas M. Makris, and Dmitry V. Peryshkov\*, *Organometallics* **2023**, *42*, 1997

**Relationship between radiative characteristics and molecular geometry: Photophysical analysis of 2-phenyl-naphthalene-appended *ortho*-carboranyl luminophores**

Seo, Y. J., Kim, M., (...), and Lee, K. M., *Dyes and Pigments* **2023**, *218*, 111451

**Bis(1-Methyl-*ortho*-Carboranyl)Borane**

Manjur O. Akram, John R. Tidwell, Jason L. Dutton, and Caleb D. Martin\*, *Angew. Chem. Int. Ed.* **2023**, e202307040

**Pd-NHC catalysed regioselective activation of B(3,6)–H of *o*-carborane – a synergy between experiment and theory**

Jia-Wei Yu, Cai-Yan Zhang, Gregory A. Chass, Jing-Xuan Zhang, Wei-Hua Mu\*, and Ke Cao\*, *Dalton Trans.* **2023**, *52*, 10609

**1,2-Diphenyl-*o*-carborane and Its Chromium Derivatives: Synthesis, Characterization, X-ray Structural Studies, and Biological Evaluations**

Tae-Jin Ha, Dong-Kyung Im, Seung-Min Kim, and Jong-Dae Lee\*, *Molecules* **2023**, *28*, 4942

**Iridium(III)-Catalyzed Regioselective B(4)–H Amination of *o*-Carboranes with Sufilimines**

Kyeongna Park, Gi Uk Han, Sugyeong Yoon, Eunseo Lee, Hee Chan Noh, Kyungsup Lee, Chanyoung Maeng, Dongwook Kim, and Phil Ho Lee\*, *Org. Lett.* **2023**, *25*, 5989

**Theoretical investigation of steric effects on the S1 potential energy surface of *o*-carborane-anthracene derivatives**

F. Alkin, *Turkish J. Chem.* **2023**, *47*, 646

**The Effect of Carborane Substituents on the Lewis Acidity of Boranes**

Manjur O. Akram, Caleb D. Martin\*, and Jason L. Dutton, *Inorg. Chem.* **2023**, *62*, 13495

**Heteroatom-Based Diradical(oid)s**

Alexander Hinz\*, Jonas Bresien\*, Frank Breher\*, and Axel Schulz\*, *Chem. Rev.* **2023**, *123*, 10468 (review)

**Redox-active carborane clusters in bond activation chemistry and ligand design**

Bryce C. Nussbaum, Amanda L. Humphries, Gayathri B. Gange and Dmitry V. Peryshkov\*, *Chem. Commun.* **2023**, *59*, 9918

**Reaction of 4-Bpin-*o*-Carborane with Ketones: Sequential Carbon Vertex Alkylation and B-B Bond Activation**

Zhen Nie, Ruofei Cheng, Zaozao Qiu\*, and Zuowei Xie\*, *Chem Asian J.* **2023**, e202300598

**Electrocatalytic hydrogen evolution with a copper porphyrin bearing meso-(*o*-carborane) substituents**

Xinyang Peng, Jinxiu Han, Xialiang Li, Guijun Liu, Yuhan Xu, Yuxin Peng, Shuai Nie, Wenzhi Li, Xinrui Li, Zhuo Chen, Haonan Peng\*, Rui Cao\*, and Yu Fang, *Chem. Commun.* **2023**, *59*, 10777

**Investigating stimuli-responsive luminescence and aggregation-induced emission properties of *o*-carborane-based luminophores modified with phenanthrene or anthracene**

Li Wang, Rong-Jian Chen, Jian-Feng Yan\*, and Yao-Feng Yuan\*, *New J. Chem.* **2023**, *47*, 16129

**Supramolecular Architectures Bearing Half-Sandwich Iridium- or Rhodium-Based Carboranes: Design, Synthesis, and Applications**

Peng-Fei Cui, Xin-Ran Liu, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, *145*, 19440 (review)

**Iridium-Catalyzed Regioselective B(4)-Alkenylation and B(3,5)-Dialkenylation of *o*-Carboranes**

Hee Chan Noh, Cheol-Eui Kim, Kyungsup Lee, Dongwook Kim, and Phil Ho Lee\*, *Org. Lett.* **2023**, *25*, 6643

**Boosting Ring Strain and Lewis Acidity of Borirane: Synthesis, Reactivity and Density Functional Theory Studies of an Uncoordinated Arylborirane Fused to *o*-Carborane**

Yuxiang Wei, Junyi Wang, Weiguang Yang, Zhenyang Lin\*, and Qing Ye\*, *Chem. Eur. J.* **2023**, *29*, e202203265

**Ir-Catalyzed B(3)-Amination of *o*-Carboranes with Amines via Acceptorless Dehydrogenative BH/NH Cross-Coupling**

Yik Ki Au,] Qiangqiang Ma, Jie Zhang\*, and Zuowei Xie\*, *Chem. Asian J.* **2023**, e202300611

**Facile synthesis, aggregation-induced emission, mechano- and thermochromism of *o*-carborane–tetraphenylethene dyads with a short CH(OH) linker**

Tianrui Li, Hao Zhang, Jinling Miao,\* Chunyue Xu, Yong Nie\*, Guangning Liu, Guoxin Sun\*, and Xuchuan Jiang, *New J. Chem.*, **2023**, *47*, 18243

**Highly phosphorescent carbene–metal–carboranyl complexes of copper(I) and gold(I)**

Samuel L. Powley, Charlotte Riley, Hwan-Hee Cho, Nguyen Le Phuoc, Mikko Linnolahti\*, Neil Greenham\*, and Alexander S. Romanov\*, *Chem. Commun.*, **2023**, *59*, 12035

**Enantioselective Alkenylation of *o*-Carboranes via Ir-Catalyzed Asymmetric B–H Activation**

Huifang Zhang, Jie Zhang, Zaozao Qiu,\* and Zuwei Xie\*, *ACS Catal.* **2023**, *13*, 13856

**Nickel-catalyzed regioselective B(3,4,5,6)-H tetra-alkylation of *o*-carboranes**

Jianwei Zhao and Zuwei Xie, *Science China Chemistry* **2023**, *66*, 2836

**Tuning Phosphine Oxide-Substituted *ortho*-Carboranes for Improved Biphasic Electrochemical UO<sub>2</sub><sup>2+</sup> Capture and Release**

Shannon Heinrich, Hila Benhaim, Maxwell Matthejat, Daniel Pan, Sydney DiMarco, Guang Wu, and Gabriel Ménard\*, *Inorg. Chem.* **2023**, *62*, 37, 15076

**Synthesis and properties of new carborane-containing polydiphenylene-*N*-phenylphthalimidine**

V. V. Shaposhnikova, S. N. Salazkin, E. G. Rys, and M. G. Ezernitskaya, *Russ. Chem. Bull.* **2023**, *72*, 1950

**Carborane-based heteromolecular extended networks driven by directional C–Te - - N chalcogen bonding interactions**

Maxime Beau, Olivier Jeannin, Marc Fourmigue\*, Emmanuel Aubert, Enrique Espinosa, Sunhee Lee, Won-Sik Han, and le-Rang Jeon\*, *Chem. Commun.* **2023**, *59*, 13727

**Carboranes meet photochemistry: Recent progresses in light-mediated cage functionalisation**

Alberto Lanfranco, Polyssena Renzi, Marco Rusconi, and Annamaria Deagostino\*, *Tetrahedron Lett.* **2023**, *131*, 154782

**Isolation and Reactivity of Homoleptic Diphosphene Lead Complexes**

Ming Chen, Zhaoyin Zhang, Jun Liu, Gongyu Li, Lili Zhao\*, and Zhenbo Mo\*, *Angew. Chem. Int. Ed.* **2023**, e202312837

**The effect of the CPP size on the nonlinear optical properties of the new necklace-type molecules formed by carborane and [n]Cycloparaphenylenes (n = 8–11)**

Li Wang, Yan-Li Liu, Di He, Sheng-Hui Chen, Quan-Jiang Li Yan-Liang Zhao, and Mei-Shan Wang, *Spectrochim. Acta A: Molec. Biomolec. Spectrosc.* **2023**, *302*, 123108

**Pioneering the Power of Twin Bonds in a Revolutionary Double Bond Formation. Unveiling the True Identity of *o*-Carboryne as *o*-Carborene**

Jordi Poater, Clara Viñas, Sílvia Escayola, Miquel Solà,\* and Francesc Teixidor\*, *Chem. Eur. J.* **2023**, e202302448

**The synthesis and topochemical polymerization of *o*-carborane-based diacetylene macrocycles**

Meigui Fu, Shuai Yuan, Qi Qu, Yaofeng Yuan\*, Caixia Lin\*, and Yanhou Geng\*, *New J. Chem.* **2023**, *47*, 21714

**B-carboranyl methyl thioether ligands in coordination with the W(CO)<sub>5</sub> fragment**

Sergey V. Timofeev\*, Kirill E. Erdely, Kyrill Yu. Suponitsky, Khusejin R. Agadzhanov, Ivan V. Ananyev, Igor B. Sivaev, and Vladimir I. Bregadze, *J. Organomet. Chem.* **2023**, *1002*, 122906

**Unlocking Heteroaromatic Ring Systems through Chalcogen Insertion into Boroles**

Tobias Bischof, Nele Wieprecht, Sonja Fuchs, Lukas Endres, Ivo Krummenacher, Maximilian Michel, Cornelius Mihm, Holger Braunschweig,\* and Maik Finze, *Inorg. Chem.* **2023**, *62*, 21329

**Carborane-Containing Polymers: Synthesis, Properties, and Applications**

Xinyi Zhang, Louis M. Rendina,\* and Markus Müllner\*, *ACS Polymers Au* **2023**, asap (review)

**9,9' -Bis-*o*-carboranes: synthesis and exploration of properties**

Feijing Chen, Wenjing Guo, Yan-Na Ma\*, and Xuenian Chen\*, *Chem. Commun.* **2023**, *60*, 614

**A geometric key for enhancing the radiative efficiency of *ortho*-carboranyl luminophores: Indolocarbazole- and *m*-terphenyl-*ortho*-carboranes**

Mingi Kim, Kanghee Cho, Yung Ju Seo, Junhyeok Choi, Namkyun Kim, Il-sup Shin, and Kang Mun Lee, *Bull. Korean Chem. Soc.* **2023**, *1*

## Reactivity of Half-Sandwich 16e Carborane Complex $\text{Me}_4\text{CpCo}[\text{S}_2\text{C}_2\text{B}_{10}\text{H}_{10}]$ with Phosphorous Compounds

Y. Huang, Q. Xiao, G. R. Xu, H. D. Ye\*, H. N. Penga\*\*, and X. L. Zhang, *Russ. J. Inorg. Chem.* **2023**, *49*, 856

## Borirenes and Boriranes: Development and Perspectives

Junyi Wang and Qing Ye\*, *Chem. Eur. J.* **2023**, e202303695 (review)

## Unveiling the Anomaly of Reduction of Carborane-bis silylene-Stabilised Silylone/Germylone Leading to Unusual Oxidation of $\text{Si}^0/\text{Ge}^0$ to $\text{Si}^I/\text{Ge}^I$ with EDA-NOCV Analyses

Sonam Suthar and Kartik Chandra Mondal\*, *Chem. Eur. J.* **2023**, e202303355

## Bi-ortho-Carborane Unit-Riveted Perylene Monoimides: Structure-Tuned Optical Switches for Electron Transfer and Robust Thin Film-Based Fluorescence Sensors

Nannan Ding, Yu-Chan Liao, Gang Wang, Kai-Hsin Chang Zhaolong Wang, Ke Liu, Jiani Ma\*, Pi-Tai Chou\*, and Yu Fang\*, *CCS Chem.* **2023**, *5*, 2922

## Synthesis, Structure, and Mechanism of Half-Sandwich Ruthenium Complex Containing ortho-Carborane-1,2-dithiolate Ligand and 1-Phenyl-2-Propyn-1-ol

J. R. Hu\*, S. Q. Zhao, J. H. Wang, S. Q. Sun, and C. P. Miao, *J. Struct. Chem.* **2023**, *64*, 2343

## *m*-carborane

### A Method for Highly Selective Halogenation of *o*-Carboranes and *m*-Carboranes

Wen Lu, Yanxuan Wu, Yan-Na Ma\*, Feijing Chen, and Xuenian Chen\*, *Inorg. Chem.* **2023**, *62*, 885

### A Computational Experiment Introducing Undergraduates to Geometry Optimizations, Vibrational Frequencies, and Potential Energy Surfaces

Matthew D. Hanson\*, Daniel P. Miller, Cholavardhan Kondeti, Adam Brown, Eva Zurek, and Scott Simpson\*, *J. Chem. Ed.* **2023**, *100*, 921

### Carborane-thiol protected copper nanoclusters: stimuli-responsive materials with tunable phosphorescence

Arijit Jana, Madhuri Jash, Wakeel Ahmed Dar, Jayoti Roy, Papri Chakraborty, Ganesan Paramasivam, Sergei Lebedkin, Kaplan Kirakci, Sujana Manna, Sudhadevi Antharjanam, Jan Machacek, Monika Kucerakova, Sundargopal Ghosh, Kamil Lang, Manfred M. Kappes\*, Tomas Base\*, and Thalappil Pradeep\*, *Chem. Sci.* **2023**, *14*, 1613

### Polyborosilazanes with Controllable B/N Ratio for Si-B-C-N Ceramics

Yanpei Dang, Tianhao Li, Yangzhong Zhao, Liantai Duan, Jianning Zhang, Ke Chen, Liu He, Qing Huang, Chuanzhuang Zhao, and Yujie Song\*, *Materials* **2023**, *16*, 1053

### Polyborosilazane with Broadly Tunable Boron Content for SiBCN Ceramics

Liantai Duan, Tianhao Li, Yangzhong Zhao, Yanpei Dang, Jianning Zhang, Ke Chen, Jian Xu, Qing Huang, Chuanzhuang Zhao, and Yujie Song\*, *Inorg. Chem.* **2023**, *62*, 10014

### Encapsulation Studies on *closo*-Dicarbadodecaborane Isomers in Neutral Tetrahedral Palladium(II) Cages

Meghamala Sarkar, Evamarie Hey-Hawkins\*, and Ramamoorthy Boomishankar\*, *Inorg. Chem.* **2023**, *62*, 4035

### The CH-functionalization of B-substituted organosilicon derivatives of polyhedral carboranes as a way to obtain new materials

Ekaterina O. Minyaylo\*, Andrey V. Zaitsev, Valentina A. Ol'shevskaya, Alexander S. Peregudov and Anton A. Anisimov\*, *Mendeleev Commun.*, **2023**, *33*, 47

### A straightforward approach to carborane-substituted BODIPY derivatives via nucleophilic aromatic substitution: Synthesis and photodynamic properties

Zaitsev, A.V.; Kononova, E.G.; (...); Ol'shevskaya, V.A., *Dyes and Pigments* **2022**, 110711

### Studies on the effect of polyhedral carboranes on the physicochemical properties of polycarboranosiloxanes

E. O. Minyaylo\*, V. Yu. Zubova, A. V. Zaitsev, V. A. Ol'shevskaya, G. G. Nikiforova, M. I. Buzin, A. A. Anisimov\*, and A. M. Muzafarov, *Polymer Chem.* **2023**, *14*, 1514

### Expanding Linker Dimensionality in Metal-organic Frameworks for sub-Ångstrom Pore Control for Separation Applications

LaurenK. Macreadie, KaramB. Idrees+, CourtneyS. Smoljan+, and OmarK. Farha\*, *Angew. Chem. Int. Ed.* **2023**, e202304094 (review)

### **BODIPY derivatives modified with carborane clusters: synthesis, characterization and DFT studies**

Andrei V. Zaitsev, Sergey S. Kiselev, Alexander F. Smol'yakov, Yury V. Fedorov, Elena G. Kononova, Yurii A. Borisova, and Valentina A. Ol'shevskaya\*, *Org. Biomol. Chem.* **2023**, *21*, 4084

### **Combining Two Types of Boron in One Molecule (To the 60th Anniversary of the First Synthesis of Carborane)**

Igor B. Sivaev, *Chemistry* **2023**, *5*, 834 (review)

### **A Metal-Organic Framework Incorporating Eight Different Size Rare-Earth Metal Elements: Toward Multifunctionality À La Carte**

Zhen Li, Xiao-Bao Li, Mark E. Light, Anna E. Carrillo, Ana Arauzo, Manuel Valvidares, Claudio Roscini, Francesc Teixidor, Clara Viñas, Felipe Gándara, Elena Bartolomé,\* and José Giner Planas\*, *Adv. Funct. Mater.* **2023**, 2307369

### **Charge Transfer Complex-Enabled Synthesis of (Hetero)arylated *m*-Carboranes from *m*-Carborane Phosphonium Salts**

Qing-Shuang Zhang, Lin He,\* Qiang Liu,\* and Xiang-Yu Chen\*, *Org. Lett.* **2023**, *25*, 5768

### **The Effect of Carborane Substituents on the Lewis Acidity of Boranes**

Manjur O. Akram, Caleb D. Martin\*, and Jason L. Dutton, *Inorg. Chem.* **2023**, *62*, 13495

### **Supramolecular Architectures Bearing Half-Sandwich Iridium- or Rhodium-Based Carboranes: Design, Synthesis, and Applications**

Peng-Fei Cui, Xin-Ran Liu, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, *145*, 19440 (review)

### **Pincer-type complexes with B(3)-H selective bond activation of *m*-carborane**

Run-Ze Yuan, Peng-Fei Cui, and Guo-Xin Jin\*, *J. Organomet. Chem.* **2023**, *1001*, 122867

### **Carborane-Containing Polymers: Synthesis, Properties, and Applications**

Xinyi Zhang, Louis M. Rendina,\* and Markus Müllner\*, *ACS Polymers Au* **2023**, asap (review)

## ***p*-carborane**

### **A Computational Experiment Introducing Undergraduates to Geometry Optimizations, Vibrational Frequencies, and Potential Energy Surfaces**

Matthew D. Hanson,\* Daniel P. Miller, Cholavardhan Kondeti, Adam Brown, Eva Zurek, and Scott Simpson\*, *J. Chem. Ed.* **2023**, *100*, 921

### **Encapsulation Studies on *closo*-Dicarbadodecaborane Isomers in Neutral Tetrahedral Palladium(II) Cages**

Meghamala Sarkar, Evamarie Hey-Hawkins,\* and Ramamoorthy Boomishankar\*, *Inorg. Chem.* **2023**, *62*, 4035

### **Photophysical Behavior of Self-Organizing Derivatives of 10- and 12-Vertex *p*-Carboranes, and their Bicyclo[2.2.2]octane and Benzene Analogues**

Rafał Jakubowski, Adam Januszko, JR. William Tilford, George J. Radziszewski, Anna Pietrzak, Victor G. Young, Jr., and Piotr Kaszyński\*, *Chem. Eur. J.* **2023**, e202203948

### **Expanding Linker Dimensionality in Metal-organic Frameworks for sub-Ångstrom Pore Control for Separation Applications**

Lauren K. Macreadie, Karam B. Idrees, Courtney S. Smoljan, and Omar K. Farha\*, *Angew. Chem. Int. Ed.* **2023**, e202304094 (review)

### **Synthesis and Structural Characterization of *p*-Carboranylamine Derivatives**

Nicole Harmgarth, Phil Liebing, Volker Lorenz, Felix Engelhardt, Liane Hilfert, Sabine Busse, Rüdiger Goldhahn, and Frank T. Edelman\*, *Molecules* **2023**, *28*, 3837

### **The Effect of Carborane Substituents on the Lewis Acidity of Boranes**

Manjur O. Akram, Caleb D. Martin\*, and Jason L. Dutton, *Inorg. Chem.* **2023**, *62*, 13495

### **Supramolecular Architectures Bearing Half-Sandwich Iridium- or Rhodium-Based Carboranes: Design, Synthesis, and Applications**

Peng-Fei Cui, Xin-Ran Liu, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, *145*, 19440 (review)

### **Robust Carborane-Based Metal-Organic Frameworks for Hexane Separation**

Karam B. Idrees, Kent O. Kirlikovali, Caitlin Setter, Haomiao Xie, Helen Brand, Bhajan Lal, Fanrui Sha, Courtney S. Smoljan, Xiaoliang Wang, Timur Islamoglu, Lauren K. Macreadie,\* and Omar K. Farha, *J. Am. Chem. Soc.* **2023**, *145*, 23433

## Carborane-Based Three-Dimensional Covalent Organic Frameworks

Xiaoyi Xu, Qirui Cui, Hongzheng Chen, and Ning Huang\*, *J. Am. Chem. Soc.* **2023**, *145*, 24202

## CB<sub>11</sub>H<sub>12</sub><sup>-</sup> derivatives and salts

### Palladium-catalyzed B7–11 penta-arylation of the {CB<sub>11</sub>} monocarborane cluster

Yujie Jin, Jizeng Sun, Kang Zhang, Jiyong Liu, Michael Wörle, and Simon Duttwyler\*, *Chem. Commun.* **2023**, 59, 67

### Recent Progress in Cyclic Aryliodonium Chemistry: Syntheses and Applications

Xiaopeng Peng, Abdur Rahim, Weijie Peng, Feng Jiang, Zhenhua Gu,\* and Shijun Wen\*, *Chem. Rev.* **2023**, *123*, 1364 (review)

### Spontaneous Transition of Alkyl Carbocations to Unsaturated Vinyl-Type Carbocations in Organic Solutions

Evgenii S. Stoyanov\* and Irina V. Stoyanova, *Int. J. Molec. Sci.* **2023**, *24*, 1802

### Shedding light on the physical nature of ion pair interactions involving carba-*closo*-dodecaborate anions. Insights from computation

Leticia M. P. Madureira, Luis G. Dias, Renato L. T. Parreira, and Giovanni F. Caramori\*, *Phys. Chem. Chem. Phys.*, **2023**, *25*, 5710

### Structures, Thermal Properties, and Reactivities of Cationic Rh–cod Complexes in Solid State (cod = 1,5-Cyclooctadiene)

Ryo Sumitani, Daisuke Kuwahara, and Tomoyuki Mochida\*, *Inorg. Chem.* **2023**, *62*, 2169

### Interaction of Vinyl-Type Carbocations, C<sub>3</sub>H<sub>5</sub><sup>+</sup> and C<sub>4</sub>H<sub>7</sub><sup>+</sup> with Molecules of Water, Alcohols, and Acetone

Evgenii S. Stoyanov\*, Irina Yu. Bagryanskaya, and Irina V. Stoyanova, *Molecules* **2023**, *28*, 1146

### Liquid crystalline electrolytes derived from the 1,12-disubstituted [*closo*-CB<sub>11</sub>H<sub>12</sub>]<sup>-</sup> anion

Guschlbauer, J; Niedzicki, L; (...); Kaszynski, P., *J. Molec. Liquids* **2023**, *377*, 121525

### Mechanisms of the Ruthenium Sulfur Complex in Generation and Stabilization of Silicon and Aluminum Electrophiles for C(sp<sup>3</sup>)-F Bond Activation

Thanapat Worakul and Panida Surawatanawong\*, *Organometallics* **2023**, *42*, 896

### BODIPY derivatives modified with carborane clusters: synthesis, characterization and DFT studies

Andrei V. Zaitsev, Sergey S. Kiselev, Alexander F. Smol'yakov, Yury V. Fedorov, Elena G. Kononova, Yurii A. Borisova, and Valentina A. Ol'shevskaya\*, *Org. Biomol. Chem.* **2023**, *21*, 4084

### Substitution of H Atoms in Unsaturated (Vinyl-Type) Carbocations by Cl or O Atoms

Evgenii S. Stoyanov\*, Irina Yu. Bagryanskaya, and Irina V. Stoyanova, *Int. J. Mol. Sci.* **2023**, *24*, 1073

### Regioselective B2–6 penta-iodination of the [CB<sub>11</sub>H<sub>12</sub>]<sup>-</sup> monocarborane cluster by palladium catalysis

Chuhao Lin, Yujie Jin, Jizeng Sun, Zehua Ye, Tao Chen, Jiyong Liu, and Simon Duttwyler\*, *Dalton Trans.* **2023**, *52*, 11042

### Synthesis of {CB<sub>11</sub>} Monocarborane Sulfonamides by B2-Selective Rhodium-Catalyzed by B2-Selective Rhodium-Catalyzed B-H Activation

Zehua Ye, Jizeng Sun, Yujie Jin, Chuhao Lin, Jiyong Liu, and Simon Duttwyler\*, *Helv. Chim. Acta* **2023**, *106*, e202300144

### Synthesis of fluorinated aminium cations coupled with carborane anions for use as strong one-electron oxidants

J. J. Davidson, S. Olivia Gunther, Derek W. Leong, and Oleg V. Ozerov, *Dalton Trans.* **2023**, *52*, 16027

## Sub-Icosahedral *Closo*-carboranes

### DFT Surface Infers Ten-Vertex Cationic Carboranes from the Corresponding Neutral *closo* Ten-Vertex Family: The Computed Background Confirming Their Experimental Availability

Michael L. McKee, Jan Vrána, Josef Holub, Jindřich Fanfrlík' and Drahomír Hnyk\*, *Molecules* **2023**, *28*, 3645

### Substituent effects on the [1-*closo*-CB<sub>9</sub>H<sub>10</sub>]<sup>-</sup> anion geometry: experimental and DFT studies

Anna Pietrzak\*, Michael J. Carr, and Piotr Kaszyński, *CrystEngComm* **2023**, *25*, 3790

### *exo-endo* Isomerism of Carboranes: Unusual Geometries of C<sub>2</sub>B<sub>5</sub>X<sub>7</sub> (X = Cl, Br) and C<sub>2</sub>B<sub>7</sub>Cl<sub>9</sub> with *exo*-Skeletal BCl<sub>2</sub> Groups on Carbon Revealed by Joint Spectroscopic/Computational Studies

Willi Keller\*, Jürgen Conrad, and Matthias Hofmann, *Chem. Select* **2023**, *8*, e20230165



## Selective Functionalization of Carbonyl *Closo*-Decaborate [2-B<sub>10</sub>H<sub>9</sub>CO]<sup>-</sup> with Building Block Properties via Grignard Reagents

Nadine Mahfouz, Fatima Abi-Ghaida\*, Wael Kotob, Ahmad Mehdi\*, and Daoud Naoufal\*, *Molecules* **2023**, *28*, 6076

## *nido*- and *arachno*-Carboranes

### Advanced Tool for Chiral Separations of Anionic and Zwitterionic (Metalla)carboranes: Supercritical Fluid Chromatography

Ondřej Horáček, Lucie Nováková, Ece Tüzün, Bohumír Grüner, František Švec,\* and Radim Kučera\*, *Anal. Chem.* **2023**, *94*, 17551

### Chelating Bis-silylenes As Powerful Ligands To Enable Unusual Low-Valent Main-Group Element Functions

Shenglai Yao, Artemis Saddington, Yun Xiong, and Matthias Driess\*, *Acc. Chem. Res.* **2023**, *56*, 475

### Facile Construction of New Hybrid Conjugation via Boron Cage Extension

Fangxiang Sun, Shuaimin Tan, Hou-Ji Cao, Chang-sheng Lu, Deshuang Tu,\* Jordi Poater,\* Miquel Solà,\* and Hong Yan\*, *J. Am. Chem. Soc.* **2023**, *145*, 3577

### Charge-Compensated Derivatives of *Nido*-Carborane

Marina Yu. Stogniy, Sergei A. Anufriev, and Igor B. Sivaev, *Inorganics* **2023**, *11*, 72 (review)

### Reactions of 5,6,10-{Cl(Ph<sub>3</sub>P)<sub>2</sub>Ru}-[5,6,10-(μ-H)<sub>3</sub>-10-*H-exo-nido*-7,8-C<sub>2</sub>B<sub>9</sub>H<sub>8</sub>] with bis(diphenylphosphino)methane and 1,2-bis(diphenylphosphino)benzene: specific features

A. A. Kaltenberg, A. M. Zimina, A. D. Bashilova, Yu. B. Malysheva, D. L. Vorozhtsov, A. V. Piskunov, N. V. Somov, and I. D. Grishin, *Russ.Chem. Bull.* **2023**, *72*, 912

### Employment of chiral columns with superficially porous particles in chiral separations of cobalt bis(dicarbollide) and *nido*-7,8-C<sub>2</sub>B<sub>9</sub>H<sub>12</sub>(1-) derivatives

Ondřej Horáček, Umang Dhaubhadel, Josef Holub, Bohumír Grüner, Daniel W. Armstrong, and Radim Kučera, *Chirality* **2023**, *1*

### New 5-*n*-C<sub>4</sub>H<sub>9</sub>-C<sub>2</sub>B<sub>9</sub>-Carborane Ligand and Its Ruthenium Complexes

A. M. Zimina, T. V. Kolpakova, S. A. Anufriev, E. I. Zueva, N. V. Somov, I. B. Sivaev, and I. D. Grishin, *Russ. J. Coord. Chem.* **2023**, *49*, 329

### Redox-active carborane clusters in bond activation chemistry and ligand design

Bryce C. Nussbaum, Amanda L. Humphries, Gayathri B. Gange and Dmitry V. Peryshkov\*, *Chem. Commun.* **2023**, *59*, 9918

### Molecular pyramids — from tetrahedranes to [6]pyramidanes

Qiu Sun, Christian Mück-Lichtenfeld, Gerald Kehr, and Gerhard Erker, *Nature Rev. Chem.* **2023**, *7*, 732

### Synthesis of Charge-Compensated *nido*-Carboranyl Derivatives of Sulfur-Containing Amino Acids and Biotin

Dmitry A. Gruzdev,\* Angelina A. Telegina, Galina L. Levit, Marina A. Ezhikova, Mikhail I. Kodess, and Victor P. Krasnov, *J. Org. Chem.* **2023**, *88*, 14022

### Nickel(II) and Palladium(II) Complexes with η<sup>5</sup>:κ<sup>1</sup>(N)-Coordinated Dicarbollide Ligands Containing Pendant Pyridine Group

Dmitriy K. Semyonov, Marina Yu. Stogniy\*, Sergey A. Anufriev, Sergey V. Timofeev, Kyrill Yu. Suponitsky, and Igor B. Sivaev, *Int. J. Mol. Sci.* **2023**, *24*, 15069

### B-carboranyl methyl thioether ligands in coordination with the W(CO)<sub>5</sub> fragment

Sergey V. Timofeev\*, Kirill E. Erdely, Kyrill Yu. Suponitsky, Khusejin R. Agadzhanov, Ivan V. Ananyev, Igor B. Sivaev, and Vladimir I. Bregadze, *J. Organomet. Chem.* **2023**, *1002*, 122906

### Spin Crossover in Iron(II) Complexes with Polynitrogen Heterocyclic Ligands and Outer-Sphere Boron Cluster Anions

L. G. Lavrenova and O. G. Shakirova, *Russ. J. Inorg. Chem.* **2023**, *68*, 690 (review)

### Synthesis of conjugates of cobalt bis(dicarbollide) with acridine

A. A. Druzina, N. V. Dudarova, I. B. Sivaev, and V. I. Bregadze. *Russ. Chem. Bull.* **2023**, *72*, 2083

### Chemistry of Carbon-Substituted Derivatives of Cobalt Bis(dicarbollide)(1-) Ion and Recent Progress in Boron Substitution

Lucia Pazderová, Ece Zeynep Tüzün, Dmytro Bovol Miroslava Litecká Lukáš Fojt, and Bohumír Grüner\*, *Molecules* **2023**, *28*, 6971

**Ruthenium Complexes Based on C<sub>2</sub>B<sub>9</sub>-*nido*-Carborane and Tridentate Phosphorus- and Nitrogen-Containing Ligands**  
A. A. Kal'tenberg, A. D. Bashilova, N. V. Somov, Yu. B. Malysheva, and I. D. Grishin, *Russ. J. Inorg. Chem.* **2023**, *68*, 690

**Asymmetric synthesis of metallacarboranes using a traceless chiral auxiliary**

Jiao Jiao, Pei He, Tilong Yang, Tingwei Zhang, Linghua Wang, Tian Han, Yong Nie, Zhenyang Lin, and Pengfei Li \*, *Org. Chem. Frontiers* **2023**, *10*, 5965

**Nickel(II) and Palladium(II) Complexes with  $\eta^5:\kappa^1(\text{N})$ -Coordinated Dicarbollide Ligands Containing Pendant Pyridine Group**

Dmitriy K. Semyonov, Marina Yu. Stogniy\*, Sergey A. Anufriev, Sergey V. Timofeev, Kyrill Yu. Suponitsky, and Igor B. Sivaev, *Int. J. Mol. Sci.* **2023**, *24*, 15069

**A Simple Way to Obtain a Decachloro Derivative of Cobalt Bis(dicarbollide)**

Sergey A. Anufriev, Marina Yu. Stogniy\* and Igor B. Sivaev, *Reactions* **2023**, *4*, 148

## TRANSITION METAL METALLACARBORANES

### Icosahedral Metallacarboranes

**Advanced Tool for Chiral Separations of Anionic and Zwitterionic (Metalla)carboranes: Supercritical Fluid Chromatography**

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**Interligand Interactions in Half-Sandwich Nickelacarboranes with Phosphine Ligands: Away from Skeletal Rearrangements**

Dmitriy K. Semyonov, Georgii K. Slushko, Marina Yu. Stogniy, Sergey A. Anufriev, Ivan A. Godovikov, Kyrill Yu. Suponitsky, Vladimir I. Bregadze, and Igor B. Sivaev\*, *Organometallics* **2023**, *42*, 2522

**Two Shared Icosahedral Metallacarboranes through Iron: A Joint Experimental and Theoretical Refinement of Mössbauer Spectrum in [Fe(1,2-C<sub>2</sub>B<sub>9</sub>H<sub>11</sub>)<sub>2</sub>]Cs**

José F. Marco, Juan Z. Dávalos-Prado, Drahomír Hnyk, Josef Holub, Ofelia B. Oña, Diego R. Alcoba, Maxime Ferrer, José Elguero, Luis Lain, Alicia Torre, and Josep M. Oliva-Enrich\*, *ACS Omega* **2023**, *8*, 13993

**Half-Sandwich Nickelacarboranes Derived from [7-(MeO(CH<sub>2</sub>)<sub>2</sub>S)-7,8-C<sub>2</sub>B<sub>9</sub>H<sub>11</sub>]<sup>-</sup>**

Dmitriy K. Semyonov, Marina Yu. Stogniy\*, Kyrill Yu. Suponitsky, and Igor B. Sivaev, *Inorganics* **2023**, *11*, 127

**Metallacarborane Synthons for Molecular Construction — Oligofunctionalization of Cobalt Bis(1,2-dicarbollide) on Boron and Carbon Atoms with Extendable Ligands**

Krzysztof Smiałkowski, Carla Sardo, and Zbigniew J. Lesnikowski\*, *Molecules* **2023**, *28*, 4118

**Nickelacarborane-Supported Bis-N-heterocyclic Carbenes**

Runxia Nan, Yiwen Li, Zhouli Zhu, Fan Qi, and Xu-Qiong Xiao\*, *J. Am. Chem. Soc.* **2023**, *145*, 15538

**Polyhedral Ferraboranes with Iron Carbonyl Vertices: Carbonyl Migration Processes in the Iron Tetracarbonyl Derivatives**

Amr A. A. Attia, Alexandru Lupan,\* and R. Bruce King\*, *J. Phys. Chem. A* **2023**, *127*, 5887

**Employment of chiral columns with superficially porous particles in chiral separations of cobalt bis(dicarbollide) and *nido*-7,8-C<sub>2</sub>B<sub>9</sub>H<sub>12</sub>(1-) derivatives**

Ondřej Horáček, Umang Dhaubhadel, Josef Holub, Bohumír Grüner, Daniel W. Armstrong, and Radim Kučera, *Chirality* **2023**, *1*

**When the Ferrocene Analogy Breaks Down: Metallocene Transmetalation Chemistry**

Varun Tej Raviprolu, Phillip Farias, Veronica Carta, Hill Harman\*, and Vincent Lavallo\*, *Angew. Chem. Int. Ed.* **2023**, e202308359

**Spin Crossover in Iron(II) Complexes with Polynitrogen Heterocyclic Ligands and Outer-Sphere Boron Cluster Anions**

L. G. Lavrenova and O. G. Shakirova, *Russ. J. Inorg. Chem.* **2023**, *68*, 690 (review)

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A. A. Druzina, N. V. Dudarova, I. B. Sivaev, and V. I. Bregadze. *Russ. Chem. Bull.* **2023**, *72*, 2083

## Chemistry of Carbon-Substituted Derivatives of Cobalt Bis(dicarbollide)(1–) Ion and Recent Progress in Boron Substitution

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## Ruthenium Complexes Based on C<sub>2</sub>B<sub>9</sub>-*nido*-Carborane and Tridentate Phosphorus- and Nitrogen-Containing Ligands

A. A. Kal'tenberg, A. D. Bashilova, N. V. Somov, Yu. B. Malysheva, and I. D. Grishin, *Russ. J. Inorg. Chem.* **2023**, *68*, 690

## Asymmetric synthesis of metallacarboranes using a traceless chiral auxiliary

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Dmitriy K. Semyonov, Marina Yu. Stogniy\*, Sergey A. Anufriev, Sergey V. Timofeev, Kyrill Yu. Suponitsky, and Igor B. Sivaev, *Int. J. Mol. Sci.* **2023**, *24*, 15069

## A Simple Way to Obtain a Decachloro Derivative of Cobalt Bis(dicarbollide)

Sergey A. Anufriev, Marina Yu. Stogniy\* and Igor B. Sivaev, *Reactions* **2023**, *4*, 148

## Sub-icosahedral metallacarboranes

### Triple-decker complexes comprising heterocyclic middle-deck with coinage metals

Chandan Nandi, Ranjit Bag, Soumen Giri, Arindam Roy, Marie Cordier, and Sundargopal Ghosh, *J. Organomet. Chem.* **2023**, *990*, 122667

### Polyhedral Ferraboranes with Iron Carbonyl Vertices: Carbonyl Migration Processes in the Iron Tetracarbonyl Derivatives

Amr A. A. Attia, Alexandru Lupan\*, and R. Bruce King\*, *J. Phys. Chem. A* **2023**, *127*, 5887

### A theoretical exploration of the second-order NLO properties of linked sandwich double-layered metallacarboranes: charge transfer mediated by linker groups

Nana Ma\*, Yajing Bian, Weiyi Cheng, Yameng Li, Qiongjin Wang, and Shujun Li\*, *Phys. Chem. Chem. Phys.*, **2023**, *25*, 22304

## Supra-icosahedral Metallacarboranes

### The first supraicosahedral osmacarboranes and dynamic behavior of 13-vertex carborane

Vinogradov, M. M.; Nelyubina, Y. V., and Novikov, R. A., *Polyhedron* **2023**, *232*, 116291

## Open-cage Metallacarboranes

## MAIN GROUP HETEROATOM CARBORANES

### Exploring the Aromaticity Differences of Isoelectronic Species of Cyclo[18]carbon (C<sub>18</sub>), B<sub>6</sub>C<sub>6</sub>N<sub>6</sub>, and B<sub>9</sub>N<sub>9</sub>: The Role of Carbon Atoms as Connecting Bridges

Yang Wu, Zeyu Liu,\*Tian Lu,\* Mesías Orozco-Ic,\* JingboXu, Xiufen Yan, Jiaojiao Wang, and Xia Wang, *Inorg. Chem.* **2023**, *62*, 19986

## APPLICATIONS OF CARBORANES AND RELATED POLYBORON CLUSTERS IN MEDICINE AND PHARMACOLOGY

### Evaluation of a Tumor-Targeting Oligosaccharide Nanosystem in BNCT on an Orthotopic Hepatocellular Carcinoma Model

Qiyao Yang, Qi Dai, Xiaoyan Bao, Yi Zhou, Yiyang Lu, Haiqing Zhong, Linjie Wu, Yinglu Guo, Lihong Liu, Xin Tan, Yiyi Xia, Min Han,\* and Qichun Wei\*, *Molec. Pharmaceut.* **2023**, *20*, 1025

### Supramolecular chemistry of anionic boron clusters and its applications in biology

Cebula, J; Fink, K; (...); Goszczynski, T. M., *Coord. Chem. Rev.* **2023**, *477*, 214940 (review)

### B–H... $\pi$ and C–H... $\pi$ interactions in protein–ligand complexes: carbonic anhydrase II inhibition by carborane sulfonamides

Jindr'ich Fanfrlík, Jir'í Brynda, Michael Kugler, Martin Lepsík, Klara Pospisilova, Josef Holub, Drahomír Hnyk, Jan Někvienda, Bohumír Gruner, and Pavlína Rezacová\*, *Phys. Chem. Chem. Phys.*, **2023**, *25*, 1728

**In Vitro Cytostatic Effect on Tumor Cells by Carborane-Based Dual Cyclooxygenase-2 and 5-Lipoxygenase Inhibitors**  
Sebastian Braun, Svetlana Paskas, Markus Laube, Sven George, Bettina Hofmann, Peter Lönnecke, Dieter Steinhilber, Jens Pietzsch, Sanja S. Mijatovic, Danijela Maksimovi-Ivanic, and Evamarie Hey-Hawkins\*, *Adv. Therapeutics* **2023**, 2200252

**The More the Better—Investigation of Polymethoxylated N-Carboranyl Quinazolines as Novel Hybrid Breast Cancer Resistance Protein Inhibitors**

Philipp Stockmann, Lydia Kuhnert\*, Wencke Leinung, Cathleen Lakoma, Birte Scholz, Svetlana Paskas, Sanja Mijatovic, Danijela Maksimovic-Ivanic, Walther Honscha, and Evamarie Hey-Hawkins\*, *Pharmaceutics* **2023**, 15, 241

**New *nido*-carborane-containing conjugates of purine: synthesis and antiviral activity**

D. A. Gruzdev, A. A. Telegina, V. A. Ol'shevskaya, V. L. Andronova, G. A. Galegov, V. V. Zarubaev, G. L. Levit, and V. P. Krasnov, *Russ. Chem. Bull.* **2022**, 71, 2375

**Carboranyl-1,8-naphthalimide intercalators induce lysosomal membrane permeabilization and ferroptosis in cancer cell lines**

Sebastian Rykowski, Dorota Gurda-Wozna, Agnieszka Fedoruk-Wyszomirska, Marta Orlicka-Płocka, Aleksandra Kowalczyk, Paweł Staczek, Marta Denel-Bobrowska, Katarzyna Biniek-Antosiak, Wojciech Rypniewski, Eliza Wyszko, and Agnieszka B. Olejniczak, *J. Enzyme Inhibition Med. Chem.* **2023**, 38, 2171028

**Carborane Analogues of Fenoprofen Exhibit Improved Antitumor Activity**

Liridona Useini, Marija Mojić, Markus Laube, Peter Lönnecke, Sanja Mijatović, Danijela Maksimović-Ivanić, Jens Pietzsch, and Evamarie Hey-Hawkins, *ChemMedChem* **2023**, e202200583

**Exploring the cell death mechanisms of cytotoxic [1,2,3]triazolylcarborane lead compounds against U87 MG human glioblastoma cells**

Catalina Alamón, Belén Dávila, Hugo Cerecetto, Marcos Couto, *Chem. Biol. Cell Design* **2023**, 101, 1435

**Acridine/Acridone–Carborane Conjugates as Strong DNA-Binding Agents with Anticancer Potential**

Daria Różycka, Aleksandra Kowalczyk, Marta Denel-Bobrowska, [Olga Kuźmycz, Magdalena Gapińska, Paweł Staczek, and Agnieszka B. Olejniczak\*, *ChemMedChem* **2023**, e202200666

**Effects of Boron-Containing Compounds on Liposoluble Hormone Functions**

Elizabeth Estevez-Fregoso, Ahmet Kilic, Diana Rodríguez-Vera, Luis E. Nicanor-Juárez, C. Elena M. Romero-Rizo, Eunice D. Farfán-García\*, and Marvin A. Soriano-Ursúa\*, *Inorganics* **2023**, 11, 84

**Metallo drugs against Breast Cancer: Combining the Tamoxifen Vector with Platinum(II) and Palladium(II) Complexes**

Aleksandr Kazimir, Benedikt Schwarze, Peter Lönnecke, Sanja Jelaca, Sanja Mijatovic, Danijela Maksimovic-Ivanic, and Evamarie Hey-Hawkins\*, *Pharmaceutics* **2023**, 15, 68

**Development of the High-Affinity Carborane-Based Cannabinoid Receptor Type 2 PET Ligand [<sup>18</sup>F]LUZ5-d<sub>8</sub>**

Lea Ueberham, Daniel Gündel, Martin Kellert, Winnie Deuther-Conrad, Friedrich-Alexander Ludwig, Peter Lönnecke, Aleksandr Kazimir, Klaus Kopka, Peter Brust, Rareș -Petru Moldovan\*, and Evamarie Hey-Hawkins\*, *J. Med. Chem.* **2023**, 66, 5242

**Metallacarboranes for proton therapy using research accelerators: a pilot study**

Teresa Pinheiro\*, Luís C. Alves, Victoria Corregido, Francesc Teixidor, Clara Viñas, and Fernanda Marque, *EPJ Techniques and Instrumentation* **2023**, Article number 5

**A Potential Boron Neutron Capture Therapy Agent Selectively Suppresses High-Grade Glioma: In Vitro and in Vivo Exploration**

Catalina Alamón, Belén Dávila, María Fernanda García, Susana Nievas, María Alejandra Dagrosa, Silvia Thorp, Mariángeles Kovacs, Emiliano Trias, Ricardo Faccio, Martín Gabay, Nidal Zeineh, Abraham Weizman, Francesc Teixidor, Clara Viñas, Moshe Gavish\*, Hugo Cerecetto\*, and Marcos Couto\*, *Molec. Pharmaceutics* **2023**, 20, 2702

**Selective Antibody-Free Sensing Membranes for Picogram Tetracycline Detection**

Hamdi Ben Halima, Abdoullatif Baraket, Clara Vinas, Nadia Zine, Joan Bausells, Nicole Jaffrezic-Renault\*, Francesc Teixidor, and Abdelhamid Errachid, *Biosensors* **2023**, 13, 71

**New Boron Delivery Agents**

Annette G. Beck-Sickinger, Daniel P. Becker, Oksana Chepurna, Bhaskar Das, Sebastian Flieger, Evamarie Hey-Hawkins, Narayan Hosmane, Satish S. Jalisatgi, Hiroyuki Nakamura, Rameshwar Patil, Maria da Graça H. Vicente, and Clara Viñas, *Cancer Biotherapy Radiopharmaceut.* **2023**, 38, 160

### Synthesis of Novel Carborane-Containing Derivatives of RGD Peptide

Alexander V. Vakhrushev, Dmitry A. Gruzdev\*, Alexander M. Demin, Galina L. Levit, and Victor P. Krasnov\*, *Molecules* **2023**, *28*, 3467

### 2-Carboranylquinazoline: The Path to an ABCG2 Inhibitor

Philipp Stockmann, Lydia Kuhnert\*, Lisa Zörner, Walther Honscha, Jand Evamarie Hey-Hawkins\*, *ChemMedChem* **2023**, e202300094

### Visible-Light-Induced Photoreduction of Carborane Phosphonium Salts: Efficient Synthesis of Carborane-Oxindole-Pharmaceutical Hybrids

Qiang Liu, Bei-Bei Zhang, He Sheng, Sen Qiao, Zhi-Xiang Wang\*, and Xiang-Yu Chen\*, *Angew. Chem. Int. Ed.* **2023**, e202305088

### Carborane-Containing Hydroxamate MMP Ligands for the Treatment of Tumors Using Boron Neutron Capture Therapy (BNCT): Efficacy without Tumor Cell Entry

Sebastian Flieger, Mao Takagaki, Natsuko Kondo, Marlon R. Lutz Jr., Yash Gupta, Hiroki Ueda, Yoshinori Sakurai, Graham Moran, Prakasha Kempaiah, Narayan Hosmane, Minoru Suzuki, and Daniel P. Becker, *Int. J. Mol. Sci.* **2023**, *24*, 6973

### Oil-in-water strategy coating Curcumin-*nido*-Carborane fluorescent complex with acrylic resins for cell imaging

Chen Lu, Zhendong Yao, Jiankang Feng, Boneng Mao\*, and Guofan Jin\*, *Arabian J. Chem.* **2023**, *16*, 104876

### Localized nuclear reaction breaks boron drug capsules loaded with immune adjuvants for cancer immunotherapy

Yaxin Shi, Zhibin Guo, Qiang Fu, Xinyuan Shen, Zhongming Zhang, Wenjia Sun, Jinqiang Wang, Junliang Sun, Zizhu Zhang, Tong Liu, Zhen Gu, and Zhibo Liu, *Nature Commun.* **2023**, *14*, 1884

### Next generation of boron neutron capture therapy (BNCT) agents for cancer treatment

Paolo Coghi, Jinxin Li, Narayan S. Hosmane, and Yinghui Zhu, *Med Res Rev.* **2023**, *1*

### Metallacarborane Cluster Anions of the Cobalt Bisdicarbollide-Type as Chaotropic Carriers for Transmembrane and Intracellular Delivery of Cationic Peptides

Yao Chen, Andrea Barba-Bon\*, Bohumir Grüner, Mathias Winterhalter, M. Alphan Aksoyoglu, Sushil Pangeni, Maryam Ashjari, Klaudia Brix, Giulia Salluce, Yeray Folgar-Cameán, Javier Montenegro\*, and Werner M. Nau, *J. Am. Chem. Soc.* **2023**, *145*, 13089

### Isonimesulide and Its Carborane Analogues as Isoform-Selective COX Inhibitors and Antitumor Agents

Liridona Useini, Teodora Komazec, Markus Laube, Peter Lönnecke, Jonas Schädlich, Sanja Mijatovi, Danijela Maksimov-Ivani, Jens Pietzsch, and Evamarie Hey-Hawkins\*, *Adv. Therap.* **2023**, 2300117

### Cobalt and iron bis(dicarbollide) conjugates with cholesterol: synthesis and evaluation of antiproliferative activity

K. E. Erdelyi, A. A. Antonets, O. B. Zhidkova, A. A. Druzina, A. A. Nazarov, S. V. Timofeev, I. B. Sivaev, and V. I. Bregadze, *Russ. Chem. Bull.* **2023**, *72*, 1059

### Carborane-Based Tebufelone Analogs and Their Biological Evaluation In Vitro

Sebastian Braun, Svetlana Paskaš, Markus Laube, Sven George, Bettina Hofmann, Peter Lönnecke, Dieter Steinhilber, Jens Pietzsch, Sanja Mijatović, Danijela Maksimović-Ivanić, and Evamarie Hey-Hawkins\*, *ChemMedChem* **2023**, e202300206

### Carborane bearing pullulan nanogel-boron oxide nanoparticle hybrid for boron neutron capture therapy

Riku Kawasaki\*, Hidetoshi Hirano, Keita Yamana, Hinata Isozaki, Shogo Kawamura, Yu Sanada, Kaori Bando, Anri Tabata, Kouhei Yoshikawa, Hideki Azuma, Takushi Takata, Hiroki Tanaka, Yoshinori Sakurai, Minoru Suzuki, M. D. Naoki Tarutani, Kiyofumi Katagiri, Ph. D. a, Shin-ichi Sawada, Ph. D. d, Yoshihiro Sasaki, Ph. D. d, Kazunari Akiyoshi, Takeshi Nagasaki, and Atsushi Ikeda\*, *Nanomedicine: Nanotechnology, Biology and Medicine* **2023**, *49*, 102659

### Basic Organic and Inorganic Chemistry of Boron Clusters and Its Application to Drug Discovery

Kiminori Ohta, *J. Pharm. Soc. Japan* **2023**, *145*, 421 (review)

### Synthesis and anticancer properties of dendritic glycoconjugates containing multiple o-carborane clusters

Biswa Ranjan Swain, Soumya Ranjan Jena, Swaraj Kumar Beriha, Chandra Sekhara Mahanta, Bibhuti Bhusan Jena, Thumpati Prasanth, Luna Samanta, Rashmirekha Satapathy\*, and Barada P. Dash\*, *New J. Chem.*, **2023**, *47*, 10296

### Synthesis and In Vitro Biological Evaluation of *p*-Carborane-Based Di-*tert*-butylphenol Analogs

Sebastian Braun, Sanja Jelaca, Markus Laube, Sven George, Bettina Hofmann, Peter Lönnecke, Dieter Steinhilber, Jens Pietzsch, Sanja Mijatovic, Danijela Maksimovic-Ivanic, and Evamarie Hey-Hawkins\*, *Molecules* **2023**, *28*, 454

### Towards the Application of Purely Inorganic Icosahedral Boron Clusters in Emerging Nanomedicine

Teixidor, F., Nunez, R, and Vinas, C., *Molecules* **2023**, *28*, 4449

### Exploiting Blood Transport Proteins as Carborane Supramolecular Vehicles for Boron Neutron Capture Therapy

Marforio, T.D., Mattioli, E.J., Zerbetto, F. and Calvaresi, M., *Nanomaterials* **2023**, *13*, Article number 1770

### PEGylated poly(lactic-co-glycolic acid) nanoparticles doped with molybdenum-iodide nanoclusters as a promising photodynamic therapy agent against ovarian cancer

Alexis Verger, Gilles Dollo, Nolwenn Brandhonneur, Sophie Martinais, Stephane Cordier, Kamil Lang, Maria Amela-Cortes, and Kaplan Kirakci\*, *Mater. Adv.* **2023**, *4*, 3207

### Cobalt bis(dicarbollide) is a DNA-neutral pharmacophore

Krzysztof Fink\*, Jakub Cebula, Zdeněk Tošner, Mateusz Psurski, Mariusz Uchman, and Tomasz M. Goszczyński, *Dalton Trans.* **2023**, *52*, 10338

### Multi-Functional Boron-Delivery Agents for Boron Neutron Capture Therapy of Cancers

Sebastian O. Oloo, Kevin M. Smith, and Maria da Graça H. Vicente\*, *Cancers* **2023**, *15*, 327 (review)

### Recent Developments in the Design of New Water-Soluble Boron Dipyrromethenes and Their Applications: An Updated Review

Chandra Sekhara Mahanta, Velayutham Ravichandiran, and Sharada Prasanna Swain\*, *ACS Appl. Bio Mater.* **2023**, *6*, 2995 (review)

### Combined Gadolinium and Boron Neutron Capture Therapies for Eradication of Head-and-Neck Tumor Using Gd<sup>10</sup>B<sub>6</sub> Nanoparticles under MRI/CT Image Guidance

Munusamy Shanmugam, Naresh Kuthala, Xiangyi Kong, Chi-Shiun Chiang, and Kuo Chu Hwang\*, *JACS Au.* **2023**, *3*, 2192 (review)

### Single stop analysis of a protein surface using molecular probe electrochemistry

Jewel Ann Maria Xavier, Isabel Fuentes, Miquel Nuez-Martinez, Clara Vinas and Francesc Teixidor\*, *J. Mater. Chem. B* **2023**, *11*, 8422

Correction for 'The Mössbauer effect using <sup>57</sup>Fe-ferrabisdicarbollide ([o-<sup>57</sup>FESAN]<sup>-</sup>): a glance into the potential of a low-dose approach for glioblastoma radiotherapy' by Ana B. Buades et al., *Inorg. Chem. Front.*, **2022**, *9*, 1490

### Dendritic Structures Functionalized with Boron Clusters, in Particular Carboranes, and Their Biological Properties

Anne-Marie Caminade\*, Max Milewsk, and Evamarie Hey-Hawkins, *Pharmaceutics* **2023**, *15*, 2117 (review)

### Physico-chemical Properties and Anticancer Activity of Carborane-BODIPY Conjugates: A Review

Bibhuti Bhusan Jena and Rashmirekha Satapathy\*, *Chem. Select* **2023**, *8*, e202302310

### Synthesis of Charge-Compensated *nido*-Carboranyl Derivatives of Sulfur-Containing Amino Acids and Biotin

Dmitry A. Gruzdev,\* Angelina A. Telegina, Galina L. Levit, Marina A. Ezhikova, Mikhail I. Kodess, and Victor P. Krasnov, *J. Org. Chem.* **2023**, *88*, 14022

### The Dawn of a New Era: Tumor-Targeting Boron Agents for Neutron Capture Therapy

Ting Luo, Wenzhi Huang, Feiyi Chu, Tianyu Zhu, Bin Feng, Shuai Huang, Jing Hou, Liyong Zhu, Shaihong Zhu, and Wenbin Zeng\*, *Molec. Pharmaceutics* **2023**, *20*, 4942

### β-L-Rhamnosylation and β-D-Mannosylation Mediated by 4-O-Ester Groups in a Weakly Nucleophilic Environment

Yongliang Zhang, Changsheng Chen, Yongtao Gao, Min Yang, Zehuan He, Bangzhi Zhang, Guofeng Gu, Bencan Tang, and Feng Cai\*, *Org. Lett.* **2023**, *25*, 7120

### New Boron Containing Acridines: Synthesis and Preliminary Biological Study

Anna A. Druzina,\* Nadezhda V. Dudarova, Ivan V. Ananyev, Anastasia A. Antonets, Dmitry N. Kaluzhny, Alexey A. Nazarov, Igor B. Sivaev, and Vladimir I. Bregadze, *Molecules* **2023**, *28*, 6636

### A simple and efficient visualization of Rhodamine B-*nido*-carborane fluorescent labeling for tumor cell imaging

Hezhong Ouyang, Zhou Wang, Lan Huang, Jingnan Hu, Xianyu Ma, Xibing Feng, and Guofan Jin, *J. Iranian Chem. Soc.* **2023**, *20*, 2507

### Synthesis of novel biotin-based carborane amides

A. A. Telegina, D. A. Gruzdev, E. N. Chulakov, G. L. Levit, O. V. Koryakova, and V. P. Krasnov, *Russ. Chem. Bull.* **2023**, *72*, 1861

### **Enhanced reversal of ABCG2-mediated drug resistance by replacing a phenyl ring in baicalein with a *meta*-carborane**

Lydia Kuhnert, Robert Kuhnert, Menyhart B. Sarosi, Cathleen Lakoma, Birte K. Scholz, Peter Lonnecke, Evamarie Hey-Hawkins, and Walther Honscha, *Molec. Oncology* **2023**, early access

### **Development of a Gadolinium–Boron-Conjugated Albumin for MRI-Guided Neutron Capture Therapy**

Satoshi Okada, Kai Nishimura, Qarri Ainaya, Kouichi Shiraiishi, Sergey A. Anufriev, Igor B. Sivaev, Yoshinori Sakurai, Minoru Suzuki, Masayuki Yokoyama, and Hiroyuki Nakamura\*, *Molec. Pharmaceut.* **2023**, 20, 6311

### **Structural Patterns Enhancing the Antibacterial Activity of Metallacarborane-Based Antibiotics**

Jakub Cebula, Krzysztof Fink, Waldemar Goldeman, Bożena Szermer-Olearnik, Anna Nasulewicz-Goldeman, Mateusz Psurski, Monika Cuprych, Anna Kędziora, Bartłomiej Dudek, Gabriela Bugla-Płoskońska, Monika Chaszczewska-Markowska, Michalina Gos, Paweł Migdał, and Tomasz M. Goszczyński\*, *J. Med. Chem.* **2023**, 66, 14948

### **Boron-Containing Coumarins**

Yu. N. Las'kova, Serdyukov, and I. B. Sivaev, *Russ. J. Inorg. Chem.* **2023**, 68, 621 (review)

### **Expanding the Range of Bioorthogonal Tags for Multiplex Stimulated Raman Scattering Microscopy**

Neville Murphy, William J. Tipping, Henry J. Braddick, Liam T. Wilson, Nicholas C. O. Tomkinson, Karen Faulds, Duncan Graham\*, and Pau Farràs, *Angew, Chem.* **2023**, e202311530

### **In Vivo Application of Carboranes for Boron Neutron Capture Therapy (BNCT): Structure, Formulation and Analytical Methods for Detection**

Tainah Dorina Marforio, Andrea Carboni\*, and Matteo Calvaresi\*, *Cancers* **2023**, 15, 4944

### **HER-2-Targeted Boron Neutron Capture Therapy with Carborane-integrated Immunoliposomes Prepared via an Exchanging Reaction**

Riku Kawasaki\*, Ayano Oshige, Keita Yamana, [Hidetoshi Hirano, Kotaro Nishimura, Yamato Miura, Ryuji Yorioka, Yu Sanada, Kaori Bando, Anri Tabata, [Kazuma Yasuhara, Yusuke Miyazaki, Wataru Shinoda, Tomoki Nishimura, Hideki Azuma, Takushi Takata, Yoshinori Sakurai, Hiroki Tanaka, Minoru Suzuki, Takeshi Nagasaki, and Atsushi Ikeda\*, *Chem. Eur. J.* **2023**, e202302486

### **Exploring the Role of Metal in the Biointeraction of Metallacarboranes with *C. elegans* Embryos**

Amanda Muñoz-Juan, Miquel Nuez-Martínez, Anna Laromaine\*, and Clara Viñas\*, *Chem. Eur. J.* **2023**, 29, e202302484

### **Carboranes as Potent Phenyl Mimetics: A Comparative Study on the Reversal of ABCG2-Mediated Drug Resistance by Carboranylquinazolines and Their Organic Isosteres**

Philipp Stockmann, Lydia Kuhnert\*, Tamara Krajnović, Sanja Mijatović, Danijela Maksimović-Ivanić, Walther Honscha, and Evamarie Hey-Hawkins\*, *ChemMedChem* **2023**, e202300506

### **Carborane-Based ABCG2-Inhibitors Sensitize ABC-(Over)Expressing Cancer Cell Lines for Doxorubicin and Cisplatin**

Svetlana Paskas, Philipp Stockmann, Sanja Mijatović, Lydia Kuhnert, Walther Honscha, Evamarie Hey-Hawkins\*, and Danijela Maksimović-Ivanić\*, *Pharmaceuticals* **2023**, 16, 1582

### **Amino Acid-Based Boron Carriers in Boron Neutron Capture Therapy (BNCT)**

Julia Järvinen, Herkko Pulkkinen, Jarkko Rautio, and Juri M. Timonen\*, *Pharmaceutics* **2023**, 15, 2663 (review)

## **CARBORANE APPLICATIONS IN ELECTRONICS**

### **A highly reusable fluorescent nanofilm sensor enables high-performance detection of ClO<sub>2</sub>**

Ying Wu, Tian Han, Gang Wang, Zhongshan Liu, Rong Miao\*, and Yu Fang\*, *Sensors and Actuators: B. Chemical* **2023**, 374, 132739

### **Alternately $\pi$ -Stacked Systems Assisted by *o*-Carborane: Dual Excimer Emission and Color Modulation by B <sub>cage</sub>-Methylation**

Junki Ochi, Kazuo Tanaka,\* and Yoshiki Chujo, *Angew, Chem. Int. Ed.* **2023**, e2022143

### **Synthesis and Characterization of New *o*-Carboranes-Based Aggregation-Induced Emission Molecules with Ultra-Large Stokes Shift**

Li Wang, Cheng-Sheng Zhou, Yu-Han Dai, Yu-Liang Hou, Jian-Feng Yan,\* Yuan-Ming Li,\* and Yao-Feng Yuan\*, *ChemistrySelect* **2023**, 8, e202204063

**Advances in Molecular Design and Photophysical Engineering of Perylene Bisimide-Containing Polyads and Multichromophores for Film-Based Fluorescent Sensors**

Zhaolong Wang, Taihong Liu, Haonan Peng, and Yu Fang\*, *J. Phys. Chem. B* **2023**, *127*, 828

**Preparation of Carborane-Tailored Covalent Organic Frameworks by a Postsynthetic Modification Strategy as a Barrier to Polysulfide in Lithium–Sulfur Batteries**

Mingming Li, Jun Yu, Yali Xue, Kai Wang, Qimeng Wang, Zhiying Xie, Lei Wang, Yu Yang, Jianping Wu, Xiaoyan Qiu,\* and Haizhou Yu\*, *ACS Appl. Mater. Interfaces* **2023**, *15*, 2922

**Bridged o-carborane–anthracene dyads as dual state emission luminogens: synthesis, characterization, and mechanochromic properties**

Chunyu Xu, Tianrui Li, Jinling Miao,\* Kexin Liu, Yong Nie\*, Guangning Liu, and Xuchuan Jiang\*, *New J. Chem.* **2023**, *47*, 4448

**Overcoming C<sub>60</sub>-induced interfacial recombination in inverted perovskite solar cells by electron-transporting carborane**

Fanguan Ye et al., *Nature Commun.* **2023**, *13*, Article number 7454

**Precise Manipulation of Excited-State Intramolecular Proton Transfer via Incorporating Charge Transfer toward High-Performance Film-Based Fluorescence Sensing**

Ke Liu, Jing Zhang, Qiyuan Shi, Liping Ding, Taihong Liu,\* and Yu Fang\*, *J. Am. Chem. Soc.* **2023**, *145*, 7408

**Near-Infrared Piezochromism from an o-Carborane Dyad: Boron Clusters Facilitating a Wide-Range Redshift and High Sensitivity**

Chunyan Lv, Yunxia Shen, Feng Cao, Qing Zhang,\* Kai Wang,\* and Yujian Zhang\*, *Chem. Eur. J.* **2023**, e202300049

**A comparison of *para*, *meta*, and *ortho*-carborane centred non-fullerene acceptors for organic solar cells**

Filip Anies, Francesco Furlan, Zhuoran Qiao, Valentina Pirela, Matthew Bidwell, Martina Rimmele, Jaime Martin, Nicola Gasparini, and Martin Heeney, *J. Mater. Chem. C* **2023**, *11*, 3989

**Frustrated element-blocks: A new platform for constructing unique stimuli-responsive luminescent materials**

Kazuo Tanaka and Yoshiaki Chujo, *Polymer J.* **2023**, *55*, 353

**Conductance of o-carborane-based wires with different substitution patterns**

Shi-Nuo Xu, Yan Zheng, Jing-Yao Ye, Zhong-Yang Chen, Jian-Feng Yan\*, Yan-Hou Geng\*, Wenjing Hong\*, and Yao-Feng Yuan\*, *Dalton Trans.* **2023**, *52*, 4349

**Achieving Simplified and Tunable Flexibility in Carborane-Based Emitters for Quantitative Vapochromic VOC Sensing**

Zhaojin Wang,\* Bo Chen, Huike Zhang, Daocheng Hong,\* and Rongfeng Guan\*, *Anal. Chem.* **2023**, *95*, 6637

**Sweet Battle of the Epimers -- Continued Exploration of Monosaccharide-Derived Delivery Agents for Boron Neutron Capture Therapy**

Jelena Matović, Katayun Bahrami, Philipp Stockmann, Iris K. Sokka, You Cheng Khng, Mirikka Sarparanta, Evamarie Hey-Hawkins, Jarkko Rautio, and Filip S. Ekholm\*, *Molec. Pharmaceut.* **2023**, *20*, 3127

**Deep red donor-acceptor type thermally activated delayed fluorescence emitter with o-carborane as an acceptor**

Cheong, K; Kim, SC and Lee, JY, *Dyes and Pigments* **2023**, *215*, 111278

**A luminescent Cu<sub>4</sub> cluster film grown by electro-spray deposition: a nitroaromatic vapour sensor**

Arijit Jana, B. K. Spoorthi, Akhil S. Nair, Ankit Nagar, Biswarup Pathak\*, Tomas Base\*, and Thalappil Pradeep\*, *Nanoscale* **2023**, *15*, 8141

**High radiative efficiency based on intramolecular charge transfer in a 9,9'-bianthracene-*ortho*-carboranyl luminophore**

Mingi Kim, Sanghee Yi, Dongwook Kim, Ilsup Shin, Yung Ju Seo, Dong Kyun You, Chan Hee Ryu, and Kang Mun Lee\*, *Dalton Trans.* **2023**, *52*, 8020

**Improvement in Radiative Efficiency Via Intramolecular Charge Transfer in *ortho*-Carboranyl Luminophores Modified with Functionalized Biphenyls**

Dong Kyun You, Mingi Kim, Dongwook Kim, Namkyun Kim, and Kang Mun Lee, *Inorg. Chem.* **2023**, *62*,10003

**Carborane based chalcogen-fused phenazines for visible light induced ATRP**

Xiaodong Yang, \*a Haishuang Li,a Dong Shao a and Gang He\*, *Chem. Commun.* **2023**, *59*, 7643



**Photophysical Properties of Pyrene-Substituted *nido*-Carborate Anion and the Change of Luminescence Species by Counter Cations in Solution and Solid States**

Takumi Yanagihara and Kazuo Tanaka\*, *Adv. Optical Mater.* **2023**, 2300492

**Biomimetic Photodegradation of Glyphosate in Carborane-Functionalized Nanoconfined Spaces**

Lei Gan, Makenzie T. Nord, Jacob M. Lessard, Noah Q. Tufts, Arunraj Chidambaram, Mark E. Light, Hongliang Huang, Eduardo Solano, Julio Fraile, Fabián Suárez-García, Clara Viñas, Francesc Teixidor, Kyriakos C. Stylianou,\* and José G. Planas\*, *J. Am. Chem. Soc.* **2023**, 145, 13730

**Thermally Activated Delayed Fluorescence in Neutral and Cationic Copper(I) Complexes with the 2-(4-Thiazolyl)benzimidazole Ligand**

Adrián Alconchel, Olga Crespo,\* and M. Concepción Gimeno\*, *Inorg. Chem.* **2023**, 62, 10431

**Multistimuli-Responsive Luminescence of  $\alpha$ -Carborane Dyads via Restriction of Electron Transfer and Molecular Motion**

Yunxia Shen, Lingrui Wang, Yuanyuan Fang, Laizhi Sui, Zhiyuan Fu, Chunyan Lv,\*Kai Wang, Qing Zhang, Haizhong Guo\*, and Yujian Zhang\*, *Adv. Optical Mater.* **2023**, 2300836

**Direction Switching and Self-Recovering Mechanochromic Luminescence of Anthracene-Modified  $\alpha$ -Carboranes**

Kazuhiro Yuhara and Kazuo Tanaka\*, *Chem. Eur. J.* **2023**, e202301189

**Selective heterogeneous capture and release of actinides using carborane-functionalized electrodes**

Maxwell Mattejata and Gabriel Menard\*, *Chem. Commun.* **2023**, 59, 9710

**Reversible Optical Data Storage via Two-Photon Micropatterning of  $\alpha$ -Carboranes-Embedded Switchable Materials**

Stephania Abdallah, Rana Mhanna, Justo Cabrera-González, Rosario Núñez\*, Amine Khitous, Fabrice Morlet-Savary, Olivier Soppera, Davy-Louis Versace, and Jean-Pierre Malval\*, *Chem. Mater.* **2023**, 35, 6979

**Normalized Multipotential Redox Coding of DNA Bases for Determination of Total Nucleotide Composition**

David Kodr, Mayreli Ortiz, Veronika Sýkorová, Cansu Pinar Yenice, Zbigniew J. Lesnikowski, Ciara K. O'Sullivan,\* and Michal Hocek\*, *Anal. Chem.* **2023**, 95, 12586

**Facile synthesis, aggregation-induced emission, mechano- and thermochromism of  $\alpha$ -carborane-tetraphenylethene dyads with a short CH(OH) linker**

Tianrui Li, Hao Zhang, Jinling Miao,\* Chunyue Xu, Yong Nie\*, Guangning Liu, Guoxin Sun\*, and Xuchuan Jiang, *New J. Chem.*, **2023**, 47, 18243

**Highly phosphorescent carbene-metal-carboranyl complexes of copper(I) and gold(I)**

Samuel L. Powley, Charlotte Riley, Hwan-Hee Cho, Nguyen Le Phuoc, Mikko Linnolahti\*, Neil Greenham\*, and Alexander S. Romanov\*, *Chem. Commun.*, **2023**, 59, 12035

**Carboranes meet photochemistry: Recent progresses in light-mediated cage functionalisation**

Alberto Lanfranco, Polyssena Renzi, Marco Rusconi, and Annamaria Deagostino\*, *Tetrahedron Lett.* **2023**, 131, 154782

**A geometric key for enhancing the radiative efficiency of *ortho*-carboranyl luminophores: Indolocarbazole- and *m*-terphenyl-*ortho*-carboranes**

Mingi Kim, Kanghee Cho, Yung Ju Seo, Junhyeok Choi, Namkyun Kim, Il-sup Shin, and Kang Mun Lee, *Bull. Korean Chem. Soc.* **2023**, 1

**Bi-*ortho*-Carborane Unit-Riveted Perylene Monoimides: Structure-Tuned Optical Switches for Electron Transfer and Robust Thin Film-Based Fluorescence Sensors**

Nannan Ding, Yu-Chan Liao, Gang Wang, Kai-Hsin Chang Zhaolong Wang, Ke Liu, Jiani Ma\*, Pi-Tai Chou\*, and Yu Fang\*, *CCS Chem.* **2023**, 5, 2922

**EXTRACTION AND DETECTION OF METAL IONS**

**Unassisted and Efficient Actinide/Lanthanide Separation with Pillar[5]arene-Based Picolinamide Ligands in Ionic Liquids**

Yimin Cai, Seraj A. Ansari,\* Lihua Yuan, Wen Feng,\* and Prasanta K. Mohapatra, *Industrial Eng. Chem. Res.* **2023**, 62, 5297

**Extraction of some univalent and divalent cations into nitrobenzene in the presence of calcium ionophore**

Petr Vaňura\* and Emanuel Makrlík, *Radiochim. Acta* **2023**, 111, 839

## OTHER CARBORANE APPLICATIONS

### Thermal-Oxidation-Resistant Poly(Carborane-Silane) for Protective Coatings Under Harsh Environments

Jiaqi Sun, Tianhao Li, Wenjing Kong, Xuejie Wang, Ke Chen, Xiao Hu, Liu He, Ming Liu, and Yujie Song\*, *ACS Appl. Polymer Mater.* **2023**, 5, 1014

### Adsorptive Separation of CO<sub>2</sub> by a Hydrophobic Carborane-Based Metal–Organic Framework under Humid Conditions

Lei Gan, Eduardo Andres-Garcia, Guillermo Minguez Espallargas,\* and José Giner Planas\*, *ACS Appl. Mater. Interfaces* **2023**, 15, 5309

### Computational Predictions of the Stability of Fluorinated Calcium Aluminate and Borate Salts

Heonjae Jeong, Ethan P. Kamphaus, Paul C. Redfern, Nathan T. Hahn, Noel J. Leon, Chen Liao, and Lei Cheng\*, *ACS Appl. Mater. Interfaces* **2023**, 15, 6933

### Flexible and thermally stable SiC fiber mats derived from electrospun boron-doped polyaluminocarbosilane precursors

Dengsheng Ji, Qin Ouyang\*, Yanfei Wang, Heng Wang, Hongze Liang, Liu He, and Qing Huang\*\*, *Ceramics Internat.* **2023**, 49, 9279

### Studies on the effect of polyhedral carboranes on the physicochemical properties of polycarboranosiloxanes

E. O. Minyaylo\*, V. Yu. Zubova, A. V. Zaitsev, V. A. Ol'shevskaya, G. G. Nikiforova, M. I. Buzin, A. A. Anisimov\*, and A. M. Muzafarov, *Polymer Chem.* **2023**, 14, 1514

### “Cage Walking” Synthetic Strategy for Unusual Unsymmetrical Supramolecular Cages

Xin-Ran Liu, Peng-Fei Cui, Shu-Ting Guo, Yue-Jian Lin, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, 145, 8569

### Long-term atomic oxygen resistant polyimide films containing carborane nanocage structure in the main chains

Wu, Z.Y.; Liu, F.L., (...); Yang, H. X., *Polymer Degradation and Stability* **2023**, 210, 110280

### Application of a Catalyst for Synthesis in Processes Initiated by Radiation of a Gyrotron in Mixtures of Titanium and Boron Nitride Powders

T. E. Gayanova\*, V. D. Stepakhina, E. A. Obratsova, E. V. Voronova, and N. N. Skvortsova, *Physics of Atomic Nuclei* **2022**, 85, 2122

### Anchoring Effect of Hyperbranched Carborane in Highly Cross-Linked Cyclosiloxane Networks toward High-Performance Polymers

Chongwen Yu, Tianhao Li, Xiao Hu, Ming Liu, Qing Huang, Liu He,\* and Yujie Song\*, *Macromolecules* **2023**, 56, 4738

### Aqueous solubilization of hydrophobic compounds by inorganic nano-ions: An unconventional mechanism

Chapazi, I., Diat, O, and Bauduin, P., *J. Colloid Interface Sci.* **2023**, 638, 561

### Metallacarborane Synthons for Molecular Construction — Oligofunctionalization of Cobalt Bis(1,2-dicarbollide) on Boron and Carbon Atoms with Extendable Ligands

Krzysztof Smiałkowski, Carla Sardo, and Zbigniew J. Lesnikowski\*, *Molecules* **2023**, 28, 4118

### A Metal-Organic Framework Incorporating Eight Different Size Rare-Earth Metal Elements: Toward Multifunctionality À La Carte

Zhen Li, Xiao-Bao Li, Mark E. Light, Anna E. Carrillo, Ana Arauzo, Manuel Valvidares, Claudio Roscini, Francesc Teixidor, Clara Viñas, Felipe Gándara, Elena Bartolomé,\* and José Giner Planas\*, *Adv. Funct. Mater.* **2023**, 2307369

### A theoretical exploration of the second-order NLO properties of linked sandwich double-layered metallacarboranes: charge transfer mediated by linker groups

Nana Ma\*, Yajing Bian, Weiyei Cheng, Yameng Li, Qiongjin Wang, and Shujun Li\*, *Phys. Chem. Chem. Phys.*, **2023**, 25, 22304

### Supramolecular Architectures Bearing Half-Sandwich Iridium- or Rhodium-Based Carboranes: Design, Synthesis, and Applications

Peng-Fei Cui, Xin-Ran Liu, and Guo-Xin Jin\*, *J. Am. Chem. Soc.* **2023**, 145, 19440 (review)

### Preparation and characterization of carborane polyurethane with excellent high carbon residue and flame retardancy

Li Ye<sup>2</sup>, Luyao Wang<sup>2</sup>, Xiaoyu Zhang, Yujie Liu, Xinheng Wu, Yu Zhang, Fanglei Zeng, Ning Li, Dezhi Qu, and Hongyan Dai, *High Performance Polymers* **2023**, 35, 1014

**A new approach to enhance the performance of phthalonitrile: study of carborane curing agents with dual functions**  
Ding, Z. C. ; Zong, L. S., (...); Wang, J. Y, *Molec. Syst. Des. Eng.* **2023**, 8, 1492

**Three-Dimensional Synthons for Cage-Dense Inorganic Polymers and Materials**  
Joseph Bedard and Saurabh S. Chitnis\*, *Chem. Mater.* **2023**, 35, 8338 (review)

**Tuning Phosphine Oxide-Substituted *ortho*-Carboranes for Improved Biphasic Electrochemical  $UO_2^{2+}$  Capture and Release**  
Shannon Heinrich, Hila Benhaim, Maxwell Mattejat, Daniel Pan, Sydney DiMarco, Guang Wu, and Gabriel Ménard\*,  
*Inorg. Chem.* **2023**, 62, 37, 15076

**Robust Carborane-Based Metal–Organic Frameworks for Hexane Separation**  
Karam B. Idrees, Kent O. Kirlikovali, Caitlin Setter, Haomiao Xie, Helen Brand, Bhajan Lal, Fanrui Sha, Courtney S. Smoljan, Xiaoliang Wang, Timur Islamoglu, Lauren K. Macreadie,\* and Omar K. Farha, *J. Am. Chem. Soc.* **2023**, 145, 23433

**Composites and Materials Prepared from Boron Cluster Anions and Carboranes**  
Varvara V. Avdeeva\*, Svetlana E. Nikiforova, Elena A. Malinina, Igor B. Sivaev, and Nikolay T. Kuznetsov, *Materials* **2023**, 16, 6099

**Carborane-Based Three-Dimensional Covalent Organic Frameworks**  
Xiaoyi Xu, Qirui Cui, Hongzheng Chen, and Ning Huang\*, *J. Am. Chem. Soc.* **2023**, 145, 24202

**“Activated Borane”: A Porous Borane Cluster Polymer as an Efficient Lewis Acid-Based Catalyst**  
Martin Lamač,\* Béla Urbán, Michal Horáček, Daniel Bůžek, Lucie Leonová, Aleš Stýskalík, Anna Vykydalová, Karel Škoch, Matouš Kloda, Andrii Mahun, Libor Kobera, Kamil Lang, Michael G. S. Londesborough, and Jan Deme, *ACS Catal.* **2023**, 13, 14614

**Expanding the Range of Bioorthogonal Tags for Multiplex Stimulated Raman Scattering Microscopy**  
Neville Murphy, William J. Tipping, Henry J. Braddick, Liam T. Wilson, Nicholas C. O. Tomkinson, Karen Faulds, Duncan Graham\*, and Pau Farràs\*, *Angew. Chem. Int. Ed.* **2023**, e202311530

**Carborane-Containing Polymers: Synthesis, Properties, and Applications**  
Xinyi Zhang, Louis M. Rendina,\* and Markus Müllner\*, *ACS Polymers Au* **2023**, asap (review)

**Flame-retardant Bismaleimide resin constructed by hyperbranched carborane segments**  
Chongwen Yu, Yanpei Dang, Jiaqi Sun, Tianhao Li, Xuejie Wang, Xiao Hu, Ming Liu, Qing Huang, Liu He, and Yujie Song, *Polymer Degrad. Stabil.* **2023**, 218, 110586

**Preparation and properties of high molecular weight high temperature resistant carborane polyurethane adhesive**  
Luyao Wang, Xiaoyu Zhang, Yi Guo, Jiahao Gao, Binghao Ma, Fanglei Zeng, Hailong Liu, Ning Li, Gang Yi, and Zhongwei Wang, *J. Adhesion Sci. Technol.* **2023**,

## **CARBORANE-RELATED BORON CLUSTERS**

### **Metallaboranes**

**Structures and Bonding of Early Transition Metallaborane Clusters**  
Stutee Mohapatra, Sourav Gayen, Ranjit Bag, Arpita Das, Rongala Ramalakshmi, Marie Cordier, and Sundargopal Ghosh\*,  
*Organometallics* **2023**, 42, 1077

**The metal-mediated coupling of the diselenaundecaborate anion  $[Se_2B_9H_{10}]$**   
Bould, J; Tok, O; (...); Ehn, M., *Inorg. Chim. Acta* **2023**, 547, 121341

**Structure and Electronic Properties of Metallaboranes with General Formula  $Cp^*_3(\mu-H)M_3B_8H_8$  (M = Cr, Mo and W): The Effect of the Size of the Metal**  
Manuel A. Treto-Suárez, Ximena Zarate,\* and Eduardo Schott\*, *ChemistrySelect* **2022**, 7, e202204009

**Synthesis and chemistry of Ru-bimetallic homocubane clusters**  
Urminder Kaur, Shippy Jaiswal, Sourav Gayen, and Sundargopal Ghosh\*, *J. Organomet. Chem.* **2023**, 989, 122642

**Polyhedral Dicobaltadithiaboranes and Dicobaltdiselenaboranes as Examples of Bimetallic Nido Structures without Bridging Hydrogens**  
Amr A. A. Atta, Alexandru Lupan, and Robert Bruce King, *Molecules* **2023**, 28, 2988

## Synthesis and Structures of Ruthena-octahydrotetraborane Complexes

Asif Ahmad, SuvamSaha, Mohammad Zafar, Marie Cordier, and Sundargopal Ghosh\*, *Eur. J. Inorg. Chem.* **2023**, e202300196

## Polyhedral Ferraboranes with Iron Carbonyl Vertices: Carbonyl Migration Processes in the Iron Tetracarbonyl Derivatives

Amr A. A. Attia, Alexandru Lupan,\* and R. Bruce King\*, *J. Phys. Chem. A* **2023**, *127*, 5887

## Synthesis, Structure and Bonding of the Tungstaboranes $[\text{Cp}^*\text{W}(\text{CO})_2\text{B}_3\text{H}_8]$ and $[(\text{Cp}^*\text{W})_3(\text{CO})_2\text{B}_4\text{H}_7]$

Mohapatra, S.; Gayen, S.; Shyamal, S.; Halet, J.-F.; Ghosh, S., *Inorganics* **2023**, *11*, 248.

## Boron-based octahedral dication experimentally detected: DFT surface confirms its availability

Willi Keller,\* Menyhart B. Sarosi, Jindrich Fanfrlik, Michal Straka, Josef Holub, Michael L. McKee, and Drahomir Hnyk\*, *RSC Advances* **2023**, *13*, 19627

## Metal-Rich Metallaboranes: Synthesis, Structure, and Bonding of Heteronuclear Trimetallic Clusters containing $(\mu_3\text{-BH})$ Ligand

Alaka Nanda Pradhan, Shippy Jaiswal, and Sundargopal Ghosh\*, *Eur. J. Inorg. Chem.* **2023**, e202300254

## Synthesis of sandwich metallaboranes $[\text{M}(\text{B}_{11}\text{H}_{11})_2]^{3-}$ (M = Cu, Ag) via polyhedral expansion of the *closo*-undecaborate anion $[\text{B}_{11}\text{H}_{11}]^{2-}$

Varvara V. Avdeeva, Alexey S. Kubasov, Alexey V. Golubev, Sergey A. Anufriev, Igor B. Sivaev, Svetlana E. Nikiforova, Lyudmila V. Goeva, Elena A. Malinina, and Nikolay T. Kuznetsov, *Inorg. Chim. Acta* **2023**, *556*, 121675

## The Telluraboranes *closo*- $\text{TeB}_5\text{Cl}_5$ and *closo*- $\text{TeB}_{11}\text{Cl}_{11}$ with Exceptionally Long Body Diagonals: Synthetic and Bonding Motifs for Innovative Octahedral and Icosahedral Geometries

Willi Keller\*, Joachim Ballmann, Menyhart B. Sarosi, Jindřich Fanfrlík, and Drahomír Hnyk\*, *Angew. Chem. Int. Ed.* **2023**, *62*, e202219018

## 16-Vertex *oblato-hypho*-titanaborane $[(\text{Cp}^*\text{Ti})_2\text{B}_{14}\text{H}_{18}]$

Sourav Kar, Subhash Bairagi, Jean-François Halet\*, and Sundargopal Ghosh\*, *Chem. Commun.* **2023**, *59*, 11676

## The Synthesis, Characterization, and Fluxional Behavior of a Hydridorhodatetraborane

Fatou Diaw-Ndiaye, Pablo J. Sanz Miguel, Ricardo Rodríguez, and Ramón Macías\*, *Molecules* **2023**, *28*, 6462

## Degradation Chemistry of Dimetallaboranes, $[(\text{Cp}^*\text{M})_2\text{B}_5\text{H}_{9+x}]$ with $[\text{Ph}_2\text{Se}_2]$ (x = 2 or 0, M = V or Cr)

Anagha Haridas, Debipada Chatterjee, Soumen Giri, Aishee De, and Sundargopal Ghosh\*, *Organometallics* **2023**, *42*, 3199

## Chlorinated polyhedral selenaboranes revisited by joint experimental/computational efforts: the formation of *closo*-1- $\text{SeB}_9\text{Cl}_9$ and the crystal structure of *closo*- $\text{SeB}_{11}\text{Cl}_{11}$

Willi Keller\*, Matthias Hofmann, Hubert Wadepohl, Markus Enders, Jindřich Fanfrlík, and Drahomír Hnyk\*, *Dalton Trans.*, **2023**, *52*, 16886

## Encapsulated Carboranes

### Encapsulation Studies on *closo*-Dicarbadodecaborane Isomers in Neutral Tetrahedral Palladium(II) Cages

Meghamala Sarkar, Evamarie Hey-Hawkins,\* and Ramamoorthy Boomishankar\*, *Inorg. Chem.* **2023**, *62*, 4035

## Carborane-Related Metal Sandwich Complexes

### Triple-Decker Iron and Cobalt Complexes Featuring a Bridging 1,2-Diboratabenzene Ligand

Masilamani Tamizmani, John R. Tidwell, Eric W. Reinheimer, Brian M. Lindley, and Caleb D. Martin\*, *Inorg. Chem.* **2023**, *62*, 7150

### Transition Metal Triple-decker Sandwich Complexes Containing Group 13 Elements

Debipada Chatterjee, Subhash Bairagi, and Sundargopal Ghosh\*, *Chem. Asian J.* **2023**, e202300864

## $\text{B}_n\text{H}_n^{2-}$ Derivatives

### High Yield Autoclave Synthesis of pure $\text{M}_2\text{B}_{12}\text{H}_{12}$ (M = Na, K)

Jian Wang, Timothy Steenhaut, Hai-Wen Li, and Yaroslav Filinchuk\*, *Inorg. Chem.* **2023**, *62*, 2153

### Electrochemical Cycling of Redox-Active Boron Cluster-Based Materials in the Solid State

Austin D. Ready, Ahamed Irshad, Anna Kallistova, Moises Carrillo, Milan Gembicky, Ram Seshadri, Sri Narayan\*, and Alexander M. Spokoyny\*, *J. Am. Chem. Soc.* **2023**, *145*, 14345

### Boron Clusters Alter the Membrane Permeability of Dicationic Fluorescent DNA-Staining Dyes

Yuya Hirai\*, Yoshimasa Makita\*, Jun Asaoka, Yuka Aoyagi, Akihiro Nomoto, Hideyuki Okamura, and Shin-ichi Fujiwara, *ACS Omega* **2023**, *8*, 35321

### Single -- Not Double -- 3D-Aromaticity in an Oxidized *Closo* Icosahedral Dodecaiodo-Dodecaborate Cluster

Jordi Poater, Sílvia Escayola, Albert Poater, Francesc Teixidor, Henrik Ottosson\*, Clara Viñas\*, and Miquel Solà\*, *J. Am. Chem. Soc.* **2023**, *145*, 22527

### Catalytic Potential of [B<sub>12</sub>X<sub>11</sub>]<sup>2-</sup> (X = F, Cl, Br, I, CN) Dianions

Mehmet Emin Kilic and Puru Jena\*, *J. Phys. Chem. Lett.* **2023**, *14*, 8697

### Study of Crystal Structures of the [B<sub>10</sub>Cl<sub>10</sub>]<sup>2-</sup> Anion with Imidazolium Cations

A. V. Golubev, A. S. Kubasov, A. Yu. Bykov, E. Yu. Matveev, N. A. Sarkisov, I. V. Novikov, P. S. Starodubets, N. A. Romanov, K. Yu. Zhizhin, and N. T. Kuznetsov, *Russ. J. Inorg. Chem.* **2023**, *68*, 657

### Mechanochemical Synthesis of *closo*-Decaborate Anion Derivatives with Pendant Functional Groups

E. Yu. Matveev, A. S. Kubasov, A. I. Nichugovskii, V. V. Avdeeva, K. Yu. Zhizhin, and N. T. Kuznetsov, *Russ. J. Inorg. Chem.* **2023**, *68*, 644

### Spin Crossover in Iron(II) Complexes with Polynitrogen Heterocyclic Ligands and Outer-Sphere Boron Cluster Anions

Lavrenova, L. G. and Shakirova, O. G., *Russ. J. Inorg. Chem.* **2023**, *68*, 690 (review)

## Other Boron Hydrides

### Chemistry of CS<sub>2</sub> and CS<sub>3</sub> Bridged Decaborane Analogues: Regular Coordination Versus Cluster Expansion

Ketaki Kar, Suvam Saha, Rahul Maganbhai Parmar, Arindam Roy, Marie Cordier, Thierry Roisnel, and Sundargopal Ghosh\*, *Molecules* **2023**, *28*, 998

### A Window into the Workings of *anti*-B<sub>18</sub>H<sub>22</sub> Luminescence—Blue-Fluorescent Isomeric Pair 3,3'-Cl<sub>2</sub>-B<sub>18</sub>H<sub>20</sub> and 3,4'-Cl<sub>2</sub>-B<sub>18</sub>H<sub>20</sub> (and Others)

Marcel Ehn, Dmytro Bovol, Jonathan Bould, Vojtěch Strnad, Miroslava Litecká, Kamil Lang, Kaplan Kirakci, William Clegg, Paul G. Waddell, and Michael G. S. Londesborough, *Molecules* **2023**, *28*, 450

### Macropolyhedral *syn*-B<sub>18</sub>H<sub>22</sub>, the “Forgotten” Isomer

Deepak Kumar Patel, B. S. Sooraj, Kaplan Kirakci, Jan Macháček, Monika Kučeráková, Jonathan Bould, Michal Dušek, Martha Frey, Christof Neumann, Sundargopal Ghosh\*, Andrey Turchanin\*, Thalappil Pradeep\*, and Tomas Base\*, *J. Am. Chem. Soc.* **2023**, *145*, 17975

### Unexpected minor products from the thermal auto-fusion of *arachno*-SB<sub>8</sub>H<sub>12</sub>: Luminescent 4-(HS)-*syn*-B<sub>18</sub>H<sub>21</sub> and 3-(HS)-*syn*-B<sub>18</sub>H<sub>21</sub>

Marcel Ehn, Miroslava Litecká, and Michael G.S. Londesborough, *Inorg. Chem. Commun.* **2023**, *155*, 111021

### Simple Route to [PSH][B<sub>9</sub>H<sub>14</sub>] and a Contemporary Study of Its Solid-State Dynamic Behavior

Jonathan Bould, Michael G. S. Londesborough, Jiří Brus, Oleg Tok, Pablo J. Sanz Miguel, and Ramón Macías\*, *Inorg. Chem.* **2023**, *42*, 62, 14568