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主要经历:

教育部“长江学者奖励计划”特聘教授、国家杰出青年科学基金获得者、“新世纪百千万人才工程”国家级人选、享受“国务院政府特殊津贴”专家、中科院“引进国外杰出人才暨百人计划”入选者、卢嘉锡优秀导师奖、中科院优秀研究生指导教师奖、中科院朱李月华优秀教师奖、福建省自然科学奖一等奖(第一完成人)、国家自然科学奖二等奖(第一完成人)。入选爱思唯尔(Elsevier)2014、2015 及 2016 年中国高被引学者(Most Cited Chinese Researchers)榜单(化学科学领域)。

1983 年 9 月至 85 年 1 月在齐齐哈尔轻工学院化工系学习。85 年 2 月至 98 年 11 月在吉林大学化学系学习与工作。88 年于吉林大学本科毕业。91 获吉林大学硕士学位。硕士毕业后,留吉林大学化学系工作。98 年获吉林大学博士学位。96 年破格晋升为吉林大学化学系副教授,主要从事配位化学、水(剂)热化学及金属氧合团簇化学研究。98 年至 2000 年在美国圣母大学(University of Notre Dame)化学与生物化学系从事博士后研究工作。2000 年至 2001 年在瑞典斯德哥尔摩大学(Stockholm University)物理、无机与结构化学系从事博士后研究,此间主要从事无机-有机杂化材料及微、中及大孔晶体材料的合成、表征及功能研究。2000 年 11 月入选中国科学院“引进国外杰出人才暨百人计划”。2001 年 5 月回国,到中科院福建物质结构研究所工作。现为北京理工大学化学与化工学院教授、博士生导师。

现主要从事无机合成与材料化学研究,包括过渡金属氧合团簇、主族金属氧合团簇、稀土氧合团簇、混合金属氧合团簇、硼氧团簇、基于氧合团簇单元构建的催化材料、多孔材料及二阶非线性光学材料等。曾多次参加国内外学术会议并做大会报告及邀请报告。同时应邀为 *Chem. Rev.*、*Chem. Soc. Rev.*、*Nature Chem.*、*Nature Rev. Mater.*、*Angew. Chem. Int. Ed.*、*J. Am. Chem. Soc.*、*Energy Envir. Sci.*、*Coord. Chem. Rev.*、*Chem.-Eur. J.*、*ChemComm*、*Inorg. Chem.*、*Chem. Mater.*、*J. Mater. Chem.* 等 30 余种国内外学术期刊审稿。曾多次参加国内外学术会议并做大会报告及邀请报告。



人才培养:

已培养青年人才 30 余人, 包括全国优秀博士论文提名奖 1 人、中科院优秀博士论文奖 1 人、中科院优秀博士论文提名奖 2 人、卢嘉锡优秀研究生奖 4 人、中科院院长奖学金优秀奖 2 人、宝钢优秀研究生奖 1 人、中科院刘永龄奖学金特别奖 2 人(优秀奖 1 人)、研究生国家奖学金 3 人、优秀毕业研究生奖多人。

研究方向:

长期从事无机合成与材料化学研究, 包括(1)过渡金属氧合团簇; (2)稀土氧合团簇; (3)锆氧团簇; (4)硼氧团簇; (5)混合金属氧合团簇; (6)硼锆氧合团簇; (7) 基于氧合团簇单元构建的催化材料、二阶非线性光学材料、多孔材料、光电磁材料、吸附及离子交换材料等。

承担课题:

中科院“引进国外杰出人才暨百人计划”专项基金、国家重大科学研究计划(973)课题、国家杰出青年科学基金、国家自然科学基金重大研究计划重点项目及国家自然科学基金面上项目等。

课题组招聘: 欢迎优秀博士毕业生加盟本课题组从事博士后研究, 同时招聘中组部青年千人、准聘教授、预聘副教授、预聘助理教授等高层次人才!

研究成果:

至 2017 年 3 月, 已申请中国发明专利 12 项(授权 9 项)并在 *Chem. Rev.*、*Chem. Soc. Rev.*、*Angew. Chem. Int. Ed.*、*J. Am. Chem. Soc.*、*ChemComm*、*J. Mater. Chem.*、*Chem.–Eur. J.* 及 *Inorg. Chem.* 等主流刊物上发表研究论文 370 余篇(被他引 7000 余次), 单篇最高他引 390 余次。主编《氧基簇合物化学》专著一部, 在《*Modern Inorganic Synthetic Chemistry*》、《21 世纪的无机化学》及《*Structural Inorganic Chemistry*》及《无机化学学科前沿与展望》等专著中撰写专章或章节。代表性论文如下:

1. S.-S. Wang, G.-Y. Yang*, Recent advances in polyoxometalate-catalyzed reactions, *Chem. Rev.*, 2015, 115, 4893-4962.
2. S.-T. Zheng, G.-Y. Yang*, Recent advances in paramagnetic-TM-substituted polyoxometalates (TM = Mn, Fe, Co, Ni, Cu), *Chem. Soc. Rev.*, 2012, 41, 7623-7646.
3. L. Huang, S.-S. Wang, J.-W. Zhao*, L. Cheng, G.-Y. Yang,* A giant Zr₂₄-cluster-substituted polyoxometalate and its oxygenation reaction of thioethers, *J. Am. Chem. Soc.*, 2014, 136, 7637-7642.
4. J. Zhou, J.-W. Zhao, Q. Wei, J. Zhang, G.-Y. Yang*, Two tetra-Cd^{II}-substituted vanadogermanate frameworks, *J. Am. Chem. Soc.*, 2014, 136, 5065-5701.
5. S.-T. Zheng, J. Zhang, X.-X. Li, W.-H. Fang, G.-Y. Yang*, Cubic polyoxometalate-organic molecular cage, *J. Am. Chem. Soc.*, 2010, 132, 15102-15103.

6. H. He, G.-J. Cao, S.-T. Zheng, G.-Y. Yang*, Lanthanide germanate cluster organic frameworks constructed from $\{Ln_8Ge_{12}\}$ or $\{Ln_{11}Ge_{12}\}$ cage cluster building blocks, *J. Am. Chem. Soc.*, 2009, 131, 15588-15589.
7. X.-X. Li, Y.-X. Wang, R.-H. Wang*, C.-Y. Cui, C.-B. Tang, G.-Y. Yang*, Designed assembly of heterometallic cluster-organic frameworks based on anderson-type polyoxometalate clusters, *Angew. Chem. Int. Ed.*, 2016, 55, 6462-6466.
8. L. Wei, Q. Wei, Z.-E. Lin, * Q. Meng, H. He, B.-F. Yang, G.-Y. Yang*, A 3D aluminoborate open-framework impenetrated by 2D Zn-amine coordination polymer networks in its 11-ring channels, *Angew. Chem. Int. Ed.*, 2014, 53, 7188-7191.
9. S.-T. Zheng, J. Zhang, J. M. Clemente-Juan, D.-Q. Yuan, G.-Y. Yang*, Poly(polyoxotungstate)s with 20 nickel centers: from nanoclusters to one-dimensional chains, *Angew. Chem. Int. Ed.*, 2009, 48, 7176-7179 (Inside Cover).
10. S.-T. Zheng, J. Zhang, G.-Y. Yang*, Designed synthesis of POM-organic frameworks by $\{Ni_6PW_9\}$ building blocks under hydrothermal conditions, *Angew. Chem. Int. Ed.*, 2008, 47, 3909-3913 (Cover).
11. G.-Z. Liu, S.-T. Zheng, G.-Y. Yang*, $In_2Ge_6O_{15}(OH)_2(H_2dien)$: An open-framework indate germanate with one-dimensional 12-ring channels, *Angew. Chem. Int. Ed.*, 2007, 46, 2827-2830.
12. J.-W. Cheng, J. Zhang, S.-T. Zheng, M.-B. Zhang, G.-Y. Yang*, Lanthanide-transition-metal sandwich framework comprising $\{Cu_3\}$ cluster pillars and layered networks of $\{Er_{36}\}$ wheels, *Angew. Chem. Int. Ed.*, 2006, 45, 73-76.
13. Z.-E. Lin, J. Zhang, J.-T. Zhao, S.-T. Zheng, C.-Y. Pan, G.-M. Wang, G.-Y. Yang*, An germanate framework containing 24-ring channels, Ni-Ge bonds, and chiral $[Ni@Ge_{14}O_{24}(OH)_3]$ cluster motifs transferred from chiral metal complexes, *Angew. Chem. Int. Ed.*, 2005, 44, 6881-6884.
14. Y.-Q. Sun, J. Zhang, Y.-M. Chen, G.-Y. Yang*, Porous lanthanide-organic open frameworks with helical tubes constructed from interweaving triple-helical and double-helical chains, *Angew. Chem. Int. Ed.*, 2005, 44, 5814-5817 (Hot Paper).
15. M.-B. Zhang, J. Zhang, S.-T. Zheng, G.-Y. Yang*, A 3D coordination framework based on linkages of nanosized hydroxo lanthanide clusters and coppercenters by isonicotinate ligands, *Angew. Chem. Int. Ed.*, 2005, 44, 1385-1388.
16. G.-Y. Yang, and S. C. Sevov*, Zinc phosphate with gigantic pores of 24 tetrahedra, *J. Am. Chem. Soc.*, 1999, 121(36), 8389-8390; Highlighted in: *Adv. Mater.*, 1999, 11, 1489.
17. J.-W. Zhao, * Y.-Z. Li, L.-J. Chen, G.-Y. Yang, * Research progress on polyoxometalate-based transition-metal-rare-earth heterometallic derived materials: synthetic strategies, structural overview and functional applications, *ChemComm*, 2016, 52, 4418-4445 (Review article).
18. W.-H. Fang, L. Zhang, J. Zhang, G.-Y. Yang*, Halogen dependent symmetry change in two series of wheel cluster organic frameworks built, from La_{18} tertiary building units, *ChemComm*, 2016, 52, 1455-1457.
19. G.-J. Cao, W.-H. Fang, J.-W. Cheng*, Q. Wei, L. Cheng, G.-Y. Yang*, A zeolite CAN-type aluminoborate with extra-large 24-ring channels, *ChemComm*, 2016, 52, 1729-1732.
20. W.-H. Fang, L. Zhang, J. Zhang, G.-Y. Yang*, A highly stable host-guest compound: face-extended diamondoid cluster-organic framework templated by infinite inorganic guests, *ChemComm*, 2015, 51, 17174-17177.

21. J.-H. Wang, Q. Wei, J.-W. Cheng*, H. He, B.-F. Yang, G.-Y. Yang*, Na₂B₁₀O₁₇·H₂O: a three-dimensional open-framework layered borate co-templated by inorganic cations and organic amines, *ChemComm*, 2015, 51, 5066-5068.
22. P. Zhao, Z. E. Lin*, Q. Wei, L. Cheng, G.-Y. Yang*, A pillared-layered zincoborate with an anionic network containing unprecedented zinc oxide chains, *ChemComm*, 2014, 50, 3592-3594.
23. L. Cheng, G.-Y. Yang*, A novel aluminoborate open-framework [In(dien)₂][Al₂B₇O₁₆H₂] with large chiral cavities templated by main group metal complexes, *ChemComm*, 2014, 50, 344-346.
24. L. Huang, J. Zhang, L. Cheng, G.-Y. Yang*, Poly(polyoxometalate)s assembled by {Ni₆PW₉} units: from ring-shaped Ni₂₄-tetramer to rod-shaped Ni₄₀-octamer, *ChemComm*, 2012, 48, 9658-9660.
25. Z.-L. Wang, W.-H. Fang, G.-Y. Yang*, The first three-fold interpenetrated framework with two different four-connected uniform nets: 6⁶ dia net and new chiral 8⁶ mdf net, *ChemComm*, 2010, 46, 8216-8218.
26. J.-W. Zhao, J. Zhang, S.-T. Zheng, G.-Y. Yang*, Combination between lacunary polyoxometalates and high-nuclear transition metal clusters under hydrothermal conditions: first (3,6)-connected framework constructed from sandwich-type polyoxometalate building blocks containing a novel {Cu₈} cluster, *ChemComm*, 2008, 570-572.
27. S.-T. Zheng, D.-Q. Yuan, H.-P. Jia, J. Zhang, G.-Y. Yang*, Combination between lacunary polyoxometalates and high-nuclear transition metal clusters under hydrothermal conditions: I. from isolated cluster to 1-D chain, *ChemComm*, 2007, 1858-1860.
28. G.-Z. Liu, S.-T. Zheng, G.-Y. Yang*, A (4,2)-connected niobium phosphate Na₁₃Nb₃P₆O₂₈F₂ with a unique 6.12-net layer: synthesis, structure and ion exchange properties, *ChemComm*, 2007, 751-753.
29. Y.-Q. Sun, J. Zhang, G.-Y. Yang*, A series of luminescent lanthanide-cadmium-organic frameworks with helical channels and tubes, *ChemComm*, 2006, 4700-4702.
30. Y.-Q. Sun, J. Zhang, G.-Y. Yang*, Two novel luminescent lanthanide sulfate-carboxylates with an unusual 2-D bamboo-raft-like structure based on the linkages of left- and right-handed helical tubes involving *in situ* decarboxylation, *ChemComm*, 2006, 1947-1949.
31. S.-S. Wang, G.-Y. Yang*, Recent developments in low-cost TM-catalysed Heck-type reactions (TM = transition metal, Ni, Co, Cu, Fe), *Catalysis Science & Technology*, 2016, 6, 2862-2876 (Review article).
32. A.-P. Wu, C.-G. Tian, Y.-Q. Jiao, Q. Yan, G.-Y. Yang*, H.-G. Fu*, Sequential two-step hydrothermal growth of MoS₂/CdS core-shell heterojunctions for efficient visible light-driven photocatalytic H₂ evolution, *Applied Catalysis B: Environmental*, 2017, 203, 955-963.
33. A.-P. Wu, C.-G. Tian, H.-J. Yan, Y.-Q. Jiao, Q. Yan, G.-Y. Yang*, H.-G. Fu*, Hierarchical MoS₂@MoP core-shell heterojunction electrocatalysts for efficient hydrogen evolution reaction over a broad pH range, *Nonoscale*, 2016, 8, 11052-11059.
34. J.-J. Wang, Q. Wei, B.-F. Yang, G.-Y. Yang*, Two new copperborates with mesoscale cubic supramolecular cages assembled from {Cu₄@B₂₀} clusters, *Chem. Eur. J.*, 2017, 23, 2774-2777.
35. Q. Wei, J.-J. Wang, C. He, J.-W. Cheng*, G.-Y. Yang*, Deep-ultraviolet nonlinear optics in a borate framework with 21-ring channels, *Chem. Eur. J.*, 2016, 22, 10759-10762.

36. H. Xue, J.-W. Zhao,* R. Pan, B.-F. Yang, G.-Y. Yang,* H.-S. Liu,* Diverse ligand-functionalized mixed-valent hexamanganese sandwiched silicotungstates with single-molecular magnet behavior, *Chem. Eur. J.*, 2016, 22, 12322-12331.
37. W.-H. Fang, L. Zhang, J. Zhang, G.-Y. Yang*, Water-stable homochiral cluster organic frameworks built by two kinds of large tetrahedral cluster units, *Chem. Eur. J.*, 2016, 22, 2611-2615.
38. W.-H. Fang, L. Zhang, J. Zhang, G.-Y. Yang*, Construction of cluster organic frameworks with *bnn* hexagonal BN topologies, *Chem. Eur. J.* 2015, 21, 15511-15515.
39. Y. Liu, R. Pan, J.-W. Cheng*, H. He, B.-F. Yang, Q. Zhang*, G.-Y. Yang*, A series of aluminoborates templated or supported by zinc-amine complexes, *Chem. Eur. J.*, 2015, 21, 15732-15739.
40. X.-X. Li, W.-H. Fang, J.-W. Zhao,* G.-Y. Yang*, The first 3-connected SrSi₂-type 3-D chiral framework constructed from {Ni₆PW₉} building units, *Chem. Eur. J.*, 2015, 21, 2315-2318 (inside cover).
41. X.-X. Li, W.-H. Fang, J.-W. Zhao,* G.-Y. Yang*, Hydrothermal combination of trilacunary dawson phosphor-tungstates and hexa-Ni clusters: from isolated cluster to 3-D framework, *Chem. Eur. J.*, 2014, 20, 17324-17332.
42. W.-H. Fang, J.-W. Cheng, G.-Y. Yang*, Two series of sandwich frameworks based on two different kinds of nanosized lanthanide(III) and copper(I) wheel cluster units, *Chem. Eur. J.*, 2014, 20, 2704-2711.
43. L. Cheng, Q. Wei, H.-Q. Wu, L.-J. Zhou, G.-Y. Yang*, Ba₃M₂[B₃O₆(OH)]₂[B₄O₇(OH)₂] (M = Al, Ga): Two novel UV nonlinear optical metal borate containing two types of oxoboron clusters, *Chem. Eur. J.*, 2013, 19, 17662-17667.
44. X.-X. Li, S.-T. Zheng, J. Zhang, W.-H. Fang, G.-Y. Yang*, J. M. Clemente-Juan*, High-nuclear Ni-substituted polyoxometalates: a series of novel poly(polyoxotungstate)s containing 20-22 nickel centres, *Chem. Eur. J.*, 2011, 17, 13032-13043.
45. J. Zhou, J. Zhang, W.-H. Fang, G.-Y. Yang*, A series of vanadogermanates from 1-D chain to 3-D framework built by Ge-V-O clusters and transition metal complex bridges, *Chem. Eur. J.*, 2010, 16, 13253-13261.
46. J. Zhou, W.-H. Fang, C. Rong, G.-Y. Yang*, A series of open-framework aluminoborates templated by transition metal complexes, *Chem. Eur. J.*, 2010, 16, 4852-4863.
47. J.-W. Zhao, C.-M. Wang, J. Zhang, S.-T. Zheng, G.-Y. Yang*, Combination of lacunary polyoxometalates and high-nuclear transition metal clusters under hydrothermal conditions: IX. a series of novel polyoxotungstates sandwiched by octa-copper clusters, *Chem. Eur. J.*, 2008, 14, 9223-9239.
48. C.-Y. Pan, G.-Z. Liu, S.-T. Zheng, G.-Y. Yang*, GeB₄O₉·2H₂O: An organically templated borogermanate with large 12-ring channels built by B₄O₉ polyanion and GeO₄ unit: host-guest symmetry and charge matching discovered in triangular-tetrahedral frameworks, *Chem. Eur. J.*, 2008, 14, 5057-5063.
49. J.-W. Cheng, J. Zhang, S.-T. Zheng, G.-Y. Yang*, Linking two distinct layered networks of nanosized {Ln₁₈} and {Cu₂₄} wheels through isonicotinate ligands, *Chem. Eur. J.*, 2008, 14, 88-97.
50. J.-W. Zhao, H.-P. Jia, J. Zhang, S.-T. Zheng, G.-Y. Yang*, A combination of lacunary polyoxometalates and high-nuclear transition metal clusters under hydrothermal conditions. Part II. from double cluster, dimer, and tetramer to 3-D framework, *Chem. Eur. J.*, 2007, 13, 10030-10045.