

# 生物有机与分子工程学院 2010 年度汇报

## 1、本年度**新增项目**和合同经费数（万元）

项目负责人	项目名称	项目类别	批准号	执行时间	批准总经费
甘良兵	富勒烯包合物的选择性化学合成及其性能研究	基金委面上基金	209972003	2010.01-2012.12	35 万元
杨震	环境友好的催化体系的研究	基金委重点项目	20832003	2009.1-2012.12	160 万元
杨震	具有重要生物活性的天然产物的化学合成	国家重点基础研究发展计划	2010CB833200	2010.01-2011.12	50 万元
席振峰	主族与稀土活性金属有机化合物的合成、分离与应用	NSFC 重大国际(地区)合作研究项目(非征集项目使用)	20920102030	2010.01-2012.12	99 万元
王剑波	以钯卡宾为基础的催化反应研究	基金委面上项目	21072009	2011.1-2013.12	38 万元
余志祥	乙烯基环丙烷参与的几类[3+2]环加成反应的机理研究和不对称方法的发展	基金委面上项目	21072013	2009.1-2012.12	38 万元
裴坚	新型有机共轭的合成、组装、组装体的表面修饰及其器件化	基金委面上项目	51073001	2011.1-2013.12	38 万元
施章杰	有机化学	杰出青年基金	20925207	2010.01-2013.12	200 万元
施章杰	有机化学	杰出青年基金	21072010	2011.01-2013.12	38 万元
刘锋	基于适配子的 SPR 生物传感体系的构建及其在肿瘤标志物分析中的应用	国家基金委面上项目	20975006	2010.1-2012.12	35 万元
刘锋	磷酸铁锂正极材	科技部	2009AA035200	2010.1-2012.12	20 万元

(参加)	料规模化生产和应用关键技术研究	863 重点项目计划			
李娜	基于复合结构金纳米粒子的共振光散射生物传感方法的研究与应用	国家基金委面上项目	20975004	2010.1-2012.12	35 万元
李娜	The Protective Effect of Flavonoids and Flavonoid Containing Toothpastes on Human Oral Mucosal Cells	高露洁合作项目	无	2010.8-2010.12	16.04 万元
刘虎威	手性分离新原理新装置研究	基金委科学仪器项目	21027012	2011.01-2013.12	200 万元
刘虎威	手性分离新原理新技术研究	中央高校基本科研业务费专项	无	2010.01-2011.12	90 万元
张新祥	基于磁性纳米粒子的亲和富集方法研究	基金委面上项目	20975007B050905	2010.1-2012.12	36 万元
刘虎威主持 赵美萍参加	手性分离新原理新技术研究	中央高校基本科研业务费专项	无	2010.01-2011.12	90 万元 (本组 30 万元)
李笑宇	模板控制下大环分子库的合成与肿瘤反凋亡药物靶标筛选的研究	基金委青年基金	21002003	2011.1-2013.12	21 万元
李笑宇	小分子探针控制下肿瘤细胞中 HDAC 信号传导的研究	基金委重大研究计划	91013003	2011.1-2013.12	70 万元
李笑宇	DNA 模板控制的蛋白质组谱分析, 组合化学, 药物筛选的研究	北京大学“百人计划”科研启动费	无	2009.12	200 万元
李笑宇	基于核酸控制技	北京大学	2009ZX09301-01	2010.10-2011.8	15 万元

	术的抗肿瘤药物分子靶标识别技术	综合性创新药物研究技术平台	0-P1-11		
李笑宇	细胞信号时空动态的前沿研究和关键技术	科技部973重点基础研究计划	2011CB809100	2011.1-2013.12	125 万元
总计			22 项		1580. 04 万元

## 2、本年度获奖情况（其中：国家级奖，省部级奖）

获奖人	获奖项目名称、等级	授奖单位	获奖人排名
杨震	2010 药明康德生命化学研究奖	药明康德	1
张新祥	第六届高等教育国家级教学成果奖二等奖	教育部	1

## 3、本年度申请及授权专利数，请按如下格式排版：

申请(授权)号	申请(授权)日	申请(授权)人	发明人	发明名称
201010177872.7	2010年5月14日	王剑波	莫凡洋, 邱迪, 张艳, 王剑波	一种芳香交叉偶联化合物的制备方法
201010177935.9	2010年5月14日	王剑波	邱迪, 莫凡洋, 张艳, 王剑波	一种芳香硼酸酯卤代化合物的制备方法
PCT/CN2010/001301	2010年8月27日	王剑波	莫凡洋、江玉波、邱迪、姚文刚、张艳、王剑波	一种芳香硼酸酯化合物的制备方法
2010101107436	2010年2月9日	张新祥	张新祥, 邱爽, 崔毅然, 邓钦培	一种基于金包裹四氧化三铁纳米颗粒的免疫亲和固相萃取方法
201010226278.2	2010年7月14日	张新祥	张新祥, 崔毅然, 高晓明, 洪超	一种细胞分选磁珠及合成方法及其在细胞分选中的应用
ZL200610011570.6	2006年3月28日	赵美萍	宓捷波, 闫瑾,	罂粟碱的酶联免

	2010年1月20日		徐菁, 赵美萍	疫定量检测方法及其试剂盒
ZL200810114618.5	2008年6月11日 2010年6月12日	赵美萍	赵美萍, 李晓敏, 宋晨, 李元宗	一种通用、实时的核酸酶荧光检测方法
201010554288.9	2010年11月19日	赵美萍	赵美萍, 谢江碧, 王丹, 李金秋, 栾书	重组人雌激素 $\alpha$ 受体配体结合域蛋白及其制备和应用

#### 4、人才培养情况: 在站博士后、在读博士生、硕士生人数

毕业 博士研究生	在读 博士研究生	在读 硕士研究生	出站 博士后	在站 博士后
22	77	25	6	7

#### 5、本年度发表论文, 请严格按照如下格式排版:

- Jianxin Zhang, Dazhi Yang, Zuo Xiao, Liangbing Gan\*  
The Chemistry of Open-cage Fullerene, Hydroxylamine Mediated Hole-closing and -opening Reactions,  
*Chin. J. of Chem.* **2010**, 28 (9), 1673-1677.
- Zhongping Jiang, Zuo Xiao, Gaihong Zhang, Liangbing Gan,\* Dian Wang, Wenxiong Zhang\*,  
Fullerenyl azide: synthesis and reactivity,  
*Tetrahedron Lett.* **2010**, 51 (2), 415-417.
- Gang Zhang, Yun Liu, Dehai Liang,\* Liangbing Gan,\* Yuliang Li,  
Facile Synthesis of Isomerically Pure Fullerenols and Formation of Spherical Aggregates from C-60(OH)(8),  
*Angew. Chem.Int. Ed.* **2010**, 49, 5293-5295.
- Dazhi Yang, Lijun Shi, Huan Huang, Jianxin Zhang, Liangbing Gan\*,  
Synthesis and Reactivity of 2H-Pyran Moiety in [60]Fullerene Cage Skeleton,  
*J. Org. Chem.* **2010**, 75, 4567-4573.
- Liangbing Gan,\* Dazhi Yang, Qianyan Zhang, Huan Huang,  
Preparation of Open-Cage Fullerenes and Incorporation of Small Molecules Through Their Orifices,  
*Adv. Mater.* **2010**, 22, 1498-1507.

- 6** Zuo Xiao, Jiayao Yao, Yuming Yu, Zhenshan Jia, Liangbing Gan\*  
Carving two adjacent holes on [60]fullerene through two consecutive epoxide to diol to dione transformations,  
*Chem. Commun.* **2010**, 46, 8365–8367.
- 7** Qianyan Zhang, Tobias Pankewitz, Shuming Liu, Wim Klopper,\* Liangbing Gan\*  
Switchable Open-Cage Fullerene for Water Encapsulation,  
*Angew. Chem. Int. Ed.* **2010**, 49, 9935–9938.
- 8** Development of New Stereodiverse Diaminocyclitols as Inhibitors of Influenza Virus Neuraminidase  
Yi Cui, Zhaodong Jiao, Jianxian Gong, Quan Yu, Xiaofeng Zheng, Junmin Quan, Ming Luo and Zhen Yang  
*Org. Lett.* **2010**, 12, 4-7.
- 9** Construction of All-Carbon Quaternary Center by R<sub>2</sub>AlCl-Mediated Ring-Opening Reaction of Oxacycles  
Chao Che, Lianzhu Liu, Jianxian Gong, Yunfang Yang, Guoxin Wang, Junmin Quan and Zhen Yang  
*Org. Lett.* **2010**, 12, 488-491.
- 10** Benzo[e]isoindole-1,3-diones as Potential Inhibitors of Glycogen Synthase Kinase-3 (GSK-3). Synthesis, Kinase Inhibitory Activity, Zebrafish Phenotype, and Modeling of Binding Mode  
Haixia Zou, Liyan Zhou, Yuanzhen Li, Yi Cui, Hanbing Zhong, Zhengying Pan, Zhen Yang and Junmin Quan  
*J. Med. Chem.* **2010**, 53, 994-1003.
- 11** A Thiourea-Oxazoline Library with Axial Chirality: Ligand Synthesis and Studies of the Palladium-Catalyzed Enantioselective Bis(methoxycarbonylation) of Terminal Olefins  
Yingxiang Gao, Le Chang, Hang Shi, Bo Liang, Kittiya Wongkhan, Duangduan Chaiyaveij, Andrei.S. Batsanov, Todd.B. Marder, Chuangchuang Li, Zhen Yang and Yong Huang  
*Adv. Synth Catal.* **2010**, 352, 1955-1966.
- 12** An unprecedented silver salt effect switches the facial selectivity in the vinylogous Mukaiyama aldol reaction  
Yufan Liang, Lin Wang, Rong Zhu, Lujiang Deng, Yunfang Yang, Junmin Quan, Jiahua Chen and Zhen Yang  
*Adv. Synth. Catal.* **2010**, 352, 2387-2393.

- 13** Asymmetric Total Synthesis of Caribenol A  
Lianzhu Liu, Jingchun Han, Guozong Yue, Chuangchuang Li and Zhen Yang  
*J. Am. Chem. Soc.* **2010**, *132*, 13608-13609.
- 14** Total Synthesis of ( $\pm$ ) Maoecrystal V  
Jianxian Gong, Guang Lin, Wenbo Sun, Chuang-Chuang Li and Zhen Yang  
*J. Am. Chem. Soc.* **2010**, *132*, 16745-16746.
- 15** 1,4-Dilithio-1,3-dienes: Reaction and Synthetic Applications  
Zhenfeng Xi\*  
*Acc. Chem. Res.* **2010**, *43*, 1342–1351.
- 16** Cleavage and Re-organization of Zr-C/Si-C Bonds Leading to Zr/Si-N  
Organometallic and Heterocyclic Compounds  
Shaoguang Zhang, Wen-Xiong Zhang, Jing Zhao, and Zhenfeng Xi\*  
*J. Am. Chem. Soc.* **2010**, *132*, 14042–14045.
- 17** Efficient One-Pot Synthesis of N-Containing Heterocycles by Multicomponent  
Coupling of Silicon-Tethered Dienes, Nitriles, and Isocyanides through  
Intramolecular Cyclization of Iminoacyl-Zr Intermediates  
Shaoguang Zhang, Wen-Xiong Zhang, and Zhenfeng Xi\*  
*Chem. Eur. J.* **2010**, *16*, 8419–8426. (VIP Highlight)
- 18** Selective synthesis of dibenzo[a,c]cyclooctatetraenes via palladium-catalyzed  
[4+4] cyclic homocoupling of borylvinyl iodobenzene derivatives  
Hui-jun Zhang, Junnian Wei, Fei Zhao, Yun Liang, Zitao Wang, Zhenfeng Xi\*  
*Chem. Commun.* **2010**, *46*, 7439–7441.
- 19** Formation of  $\alpha$ -Lithio Siloles from Silylated 1,4-Dilithio-1,3-butadienes:  
Mechanism and Applications  
Qian Luo, Chao Wang, Li Gu, Wen-Xiong Zhang, and Zhenfeng Xi\*  
*Chem. Asian. J.* **2010**, *5*, 1120–1128.
- 20** Isolation and X-ray Structure of a Trimeric 1,4-Dilithio-1,3-butadiene and a  
Dimeric Me<sub>3</sub>Si-Substituted 1,4-Dilithio-1,3-butadiene  
Lantao Liu, Wen-Xiong Zhang,\* Qian Luo, Heng Li, and Zhenfeng Xi\*  
*Organometallics* **2010**, *29*, 278–281.
- 21** Zn(OTf)<sub>2</sub>-Catalyzed Addition of Amines to Carbodiimides: Efficient Synthesis of  
Guanidines and Unpredicted Formation of Zn–N Amido Species  
Dongzhen Li, Jie Guang, Wen-Xiong Zhang,\* Yang Wang, and Zhenfeng Xi\*  
*Org. Biomol. Chem.* **2010**, *8*, 1816–1820.
- 22** Advances in the syntheses of six-membered metallacycles

- Qifeng Wang, Chen Lin, Zhenfeng Xi\*  
*Chin. J. Org. Chem.* **2010**, *30*, 157–166.
- 23** Advances in the Synthesis and Reactivity of 2-Pyranylidene Carbene Complexes  
Qifeng Wang, Wen-xiong Zhang, Chen Lin, and Zhenfeng Xi\*  
*Chinese. Sci. Bull.* **2010**, *55*, 2915-2923.
- 24** Lei Zhou, Fei Ye, Yan Zhang, Jianbo Wang\*  
Pd-Catalyzed Three-Component Coupling of N-Tosylhydrazone, Terminal Alkyne, and Aryl Halide  
*J. Am. Chem. Soc.* **2010**, *132*, 13590-13591.
- 25** Changkun Li, Yi Zeng, Hang Zhang, Jiajie Feng, Yan Zhang and Jianbo Wang\*  
Gold(I)-Catalyzed Cycloisomerization of Enynes Containing Cyclopropenes  
*Angew. Chem. Int. Ed.* **2010**, *49*, 6413-6417.
- 26** Changkun Li, Hang Zhang, Jiajie Feng, Yan Zhang and Jianbo Wang\*  
Rh(I)-catalyzed carbonylative carbocyclization of tethered ene- and yne-cyclopropenes  
*Org. Lett.* **2010**, *12*, 3082-3085.
- 27** Di Qiu, Fanyang Mo, Zhitong Zheng, Yan Zhang and Jianbo Wang\*  
Gold(III)-Catalyzed Halogenation of Aromatic Boronates with N-Halosuccinimides  
*Org. Lett.* **2010**, *12*, 5474-5477.
- 28** Xia Zhao, Guojiao Wu, Chong Yan, Kui Lu, Hui Li, Yan Zhang and Jianbo Wang\*  
Microwave-Assisted, Pd(0)-Catalyzed Cross-Coupling of Diazirines with Aryl Halides  
*Org. Lett.* **2010**, *12*, 5580-5583.
- 29** Jie Ma, Lingling Peng, Xiu Zhang, Zhe Zhang, Melody Campbell and Jianbo Wang\*  
InI<sub>3</sub>- or ZnI<sub>2</sub>-Catalyzed Reaction of Hydroxylated 1,5-Allenynes with Thiols: a New Access to 3,5-Disubstituted Toluene Derivatives  
*Chem. Asian J.* **2010**, *5* (10), 2214-2220.
- 30** Guobing Yan, Yubo Jiang, Chunxiang Kuang,\* Shuai Wang, Haichao Liu, Yan Zhang and Jianbo Wang\*  
Nano-Fe<sub>2</sub>O<sub>3</sub>-catalyzed Direct Borylation of Arenes  
*Chem. Commun.* **2010**, *46*, 3170-3172.
- 31** Guobing Yan, Chunxiang Kuang, Yan Zhang and Jianbo Wang\*

Palladium-Catalyzed Direct Cyanation of Indoles with  $K_4[Fe(CN)_6]$   
*Org. Lett.* **2010**, *12*, 1052-1055.

- 32** Fanyang Mo, Yubo Jiang, Di Qiu, Yan Zhang and Jianbo Wang\*  
Direct Conversion of Arylamines to the Pinacol Boronates: A Metal-Free  
Borylation Process  
*Angew. Chem. Int. Ed.* **2010**, *49*, 1846-1849.
- 33** Fanyang Mo, Jerry Mingtao Yan, Di Qiu, Fei Li, Yan Zhang and Jianbo Wang\*  
Gold-Catalyzed Halogenation of Aromatics by *N*-Halosuccinimides  
*Angew. Chem. Int. Ed.* **2010**, *49*, 2028-2032.
- 34** Fanyang Mo, Fei Li, Di Qiu and Jianbo Wang\*  
Enantioselective Synthesis of Condensed and Transannular Ring Skeletons  
Containing Pyrrolidine Moiety  
*Tetrahedron*, **2010**, *66*, 1274-1279.
- 35** Fangyang Mo, Fei Li and Jianbo Wang\*  
Diastereoselective Addition of Lithium Enolate of  $\gamma$ -Substituted  $\alpha$ -  
Diazoacetoacetate to *N*-Sulfinyl Imines  
*Chinese Science Bulletin* **2010**, *55*, 2847-2854.
- 36** Xia Zhao, Jing Jing, Kui Lu, Yan Zhang and Jianbo Wang\*  
Pd-Catalyzed Oxidative Cross-Coupling of *N*-Tosylhydrazones with  
Arylboronic Acids  
*Chem. Commun.* **2010**, *46*, 1724-1726.
- 37** Zhenhua Zhang, Yiyang Liu, Mingxing Gong, Xiaokun Zhao, Yan Zhang and  
Jianbo Wang\*  
Palladium-Catalyzed Carbonylation/Acyl Migratory Insertion Sequence.  
*Angew. Chem. Int. Ed.* **2010**, *49*, 1139-1142.
- 38** Yan Zhang and Jianbo Wang\*  
Catalytic [2,3]-Sigmatropic Rearrangement of Sulfur Ylide Derived from Metal  
Carbene  
*Coord. Chem. Rev.* **2010**, *254*, 941-953.
- 39** Zhenhua Zhang, Weifeng Shi, Jian Zhang, Bo Zhang, Bingge Liu, Yiyang Liu  
Bo Fan, Fengping Xiao, Feng Xu and Jianbo Wang\*  
Rh(II)-Catalyzed Reaction of  $\alpha$ -Diazocarbonyl Compounds bearing  
beta-Trichloroacetyl amino Substituent: C-H Insertion versus 1,2-H Shift  
*Chem. Asian J.* **2010**, *5*, 1112-1119.
- 40** Cheng Peng, Guobin Yan, Yan Wang, Yubo Jiang, Yan Zhang and Jianbo Wang\*



- Palladium-Catalyzed Coupling Reaction of  $\alpha$ -Diazocarbonyl Compounds with Aromatic Boronic Acids and Halides  
*Synthesis*. **2010**, 4154-4168.
- 41** Rh(I)-Catalyzed Intramolecular [3+2] Cycloadditions of 1-Ene-, 1-Yne- and 1-Allene-Vinylcyclopanes  
Lei Jiao, Mu Lin, and Zhi-Xiang Yu\*  
*Chem. Comm.* **2010**, 46, 1059.
- 42** Gold(I)-Catalyzed Ring Expansions of Unactivated Alkynylcyclopropanes to (E)-2-Alkylidenecyclobutanamines in the Presence of Sulfonamides  
Siyu Ye and Zhi-Xiang Yu\*  
*Org. Lett.* **2010**, 12, 804.
- 43** Reaction of  $\alpha$ -ene-Vinylcyclopropanes: Type-II Intramolecular [5+2] Cycloaddition or [3+2] Cycloaddition?  
Qian Li, Guo-Jie Jiang, Lei Jiao, and Zhi-Xiang Yu\*  
*Org. Lett.* **2010**, 12, 1332.
- 44** Conjugated Diene Assisted Allylic C-H Bond Activation: Cationic Rh(I) Catalyzed Syntheses of Polysubstituted Tetrahydropyrroles, Tetrahydrofurans, and Cyclopentanes from Ene-2-Dienes  
Qian Li and Zhi-Xiang Yu\*  
*J. Am. Chem. Soc.* **2010**, 132, 4542.
- 45** Rh(I)-Catalyzed [(3+2)+1] Cycloaddition of 1-Yne-/1-Ene-Vinylcyclopropanes and CO: A Homologous Pauson-Khand Approach to Six-Membered Carbocycle and Total Synthesis of  $\alpha$ -Agarofuran  
Lei Jiao, Mu Lin, Lian-Gang Zhuo, and Zhi-Xiang Yu\*  
*Org. Lett.* **2010**, 12, 2528.
- 46** Transition-Metal-Catalyzed Cycloadditions for the Synthesis of Eight-Membered Carbocycles  
Zhi-Xiang Yu,\* Yi Wang, and Yuanyuan Wang  
*Chem. Asian J.* **2010**, 5, 1072.
- 47** Rh(I)-Catalyzed Two-Component [(5+2)+1] Cycloaddition Approach toward [5-8-5] Ring Systems  
Feng Huang, Zhongke Yao, Yi Wang, Yuanyuan Wang, Jialing Zhang, and Zhi-Xiang Yu\*  
*Chem. Asian J.* **2010**, 5, 1555.
- 48** Formal total synthesis of ( $\pm$ )-hirsutic acid C using the tandem Rh(I)-catalyzed [(5+2)+1] cycloaddition/aldol reaction

Changxia Yuan, Lei Jiao, and Zhi-Xiang Yu\*  
*Tetrahedron Lett.* **2010**, 51, 5674.

- 49** Highly Efficient and Color-Stable Deep-Blue Organic Light-Emitting Diodes Based on a Solution-Processible Dendrimer  
Lei Wang, Yang Jiang, Jia Luo, Yan Zhou, Junhong Zhou, Jian Wang,\* Jian Pei,\* and Yong Cao  
*Adv. Mater.* **2009**, 21, 4854-4857. (去年没有列出)
- 50** High-Performance Organic Field-Effect Transistors from Organic Single-Crystal Microribbons Formed by a Solution Process  
Yan Zhou, Ting Lei, Lei Wang, Jian Pei,\* Yong Cao, and Jian Wang\*  
*Adv. Mater.* **2010**, 22, 1484-1487.
- 51** Surface Modification of Self-Assembled One-Dimensional Organic Structures: White-Light Emission and Beyond  
Xiao Wang, Jing Yan, Yan Zhou, and Jian Pei  
*J. Am. Chem. Soc.* **2010**, 132, 15872–15874.
- 52** Solution-Processable Flower-Shaped Hierarchical Structures: Self-Assembly, Formation, and State Transition of Biomimetic Superhydrophobic Surfaces  
Jie Yin, Jing Yan, Ming He, Yanlin Song,\* Xiaoguang Xu, Kai Wu,\* and Jian Pei\*  
*Chem. Eur. J.* **2010**, 16, 7309-7318.
- 53** Smart Macrocyclic Molecules: Induced Fit and Ultrafast Self-Sorting Inclusion Behavior through Dynamic Covalent Chemistry  
Ji-Ming Han, Jin-Long Pan, Ting Lei, Chenjiang Liu,\* and Jian Pei  
*Chem. Eur. J.* **2010**, 16, 13850-13861.
- 54** Structural-Property Relationship in Pyrazino[2,3-g]quinoxaline Derivatives: Morphology, Photophysical, and Waveguide Properties  
Xiao Wang, Yan Zhou, Ting Lei, Nan Hu, Er-Qing Chen,\* and Jian Pei\*  
*Chem. Mater.* **2010**, 22, 3735–3745.
- 55** CdSe/ZnS Nanoparticle Composites with Amine-Functionalized Polyfluorene Derivatives for Polymeric Light-Emitting Diodes: Synthesis, Photophysical Properties, and the Electroluminescent Performance  
Zhen-Shan Guo, Lihua Zhao, Jian Pei,\* Zhang-Lin Zhou,\* Gary Gibson, James Brug, Sity Lam,† and Samuel S. Mao\*  
*Macromolecules* **2010**, 43, 1860–1866.
- 56** A photoswitch based on self-assembled single microwire of a phenyleneethynylene macrocycle

Jia Luo, Qifan Yan, Yan Zhou, Ting Li, Ninbo Zhu, Chuanjiang Bai, Yong Cao, Jian Wang,\* Jian Pei,\* and Dahui Zhao\*  
*Chem. Commun.* **2010**, 46, 5725–5727.

- 57** Copper-free cycloaddition of azide and alkyne in crystalline state facilitated by arene-perfluoroarene interactions  
Ben-Bo Ni, Chong Wang, Huixian Wu, Jian Pei,\* and Yuguo Ma\*  
*Chem. Commun.* **2010**, 46, 782–784.
- 58** Polycyclic Imide Derivatives: Synthesis and Effective Tuning of Lowest Unoccupied Molecular Orbital Levels through Molecular Engineering  
Lin Ding, Han-Ze Ying, Yan Zhou, Ting Lei, and Jian Pei\*  
*Org. Lett.* **2010**, 12, 5522–5525.
- 59** Benzothiadiazole-Based D- $\pi$ -A- $\pi$ -D Organic Dyes with Tunable Band Gap: Synthesis and Photophysical Properties  
Jin-Liang Wang, Qi Xiao, and Jian Pei\*  
*Org. Lett.* **2010**, 12, 4164–4167.
- 60** Solution-Processed Bulk-Heterojunction Photovoltaic Cells Based on Dendritic and Star-Shaped D- $\pi$ -A Organic Dyes  
Jin-Liang Wang, Zhicai He, Hongbin Wu, Haibo Cui, Yan Li, Qihuang Gong,\* Yong Cao,\* and Jian Pei\*  
*Chem. Asian J.* **2010**, 5, 1455–1465.
- 61** Solution-processed bulk heterojunction photovoltaic cells from gradient  $\pi$ -conjugated thienylene vinylene dendrimers  
Jin-Liang Wang, Chengmei Zhong, Zheng-Ming Tang, Hongbin Wu, Yuguo Ma,\* Yong Cao,\* and Jian Pei\*  
*Chem. Asian J.* **2010**, 5, 105–113.
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