宁波市科学技术奖公示信息表（单位提名）

提名奖项：宁波市青年科技创新奖

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| 成果名称 | 荧光高分子水凝胶 |
| 提名等级 | 宁波市青年科技创新奖 |
| **提名书**  **相关内容** | 提名书的代表性论文（专著）目录、主要知识产权和标准规范目录等；  **1．10篇核心代表性论文**  (1) **Lu, W.**; Si, M.; Liu, H.; Qiu, H.; Wei, S.; Wu, B.; Wang, R.; Yin, G.; Zhang, J.; Theato, P.; Wei, Y.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), A panther chameleon skin-inspired core@shell supramolecular hydrogel with spatially organized multi-luminogens enables programmable color change. ***Cell Reports Physical Science*****2021**, 100417, DOI: 10.1016/j.xcrp.2021.100417.  (2) Wei, S.; Li, Z.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Liu, H.; Zhang, J.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Tang, B. Z.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Multicolor fluorescent polymeric hydrogels. ***Angew. Chem. Int. Ed.*****2021**, 60, 8608–8624, DOI: 10.1002/anie.202007506.  (3) Wei, S. X.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Le, X. X.; Ma, C. X.; Lin, H.; Wu, B. Y.; Zhang, J. W.; Théato, P.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Bioinspired Synergistic Fluorescence-Color Switchable Polymeric Hydrogel Actuator. ***Angew. Chem. Int. Ed.*****2019**, *58*, 16243–16251, DOI: 10.1002/anie.201908437.  (4) Zhang, Y. C.;Le, X. X.; Jian, Y. K.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1);Zhang, J. W.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Three-Dimensional Fluorescent Hydrogel Origami for Multistage Data Security Protection. ***Adv. Funct. Mater.*****2019**, 29, 1905514, DOI: 10.1002/adfm.201905514.  (5) He, J.; Xiao, P.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Shi, J.; Zhang, L.; Liang, Y.; Pan, C.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Kuo, S.W.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), A Universal High Accuracy Wearable Pulse Monitoring System via High Sensitivity and Large Linearity Graphene Pressure Sensor. ***Nano Energy*****2019,** *59*, 422−433, DOI: 10.1016/j.nanoen.2019.02.036.  (6) Ma, C. X.; **Lu, W. (共一)**;Yang, X.; He, J.; Le, X. X.; Wang, L.; Zhang, J. W.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Serpe, M. J.; Huang, Y. J.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Bio-Inspired Anisotropic Hydrogel Actuator with On-Off Switchable and Color-Tunable Fluorescence Behaviors. ***Adv. Funct. Mater.*****2018**, 28, 1704568, DOI: 10.1002/adfm.201704568.  (7) He, J.; Xiao, P.; Shi, J.; Liang, Y.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Chen, Y.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Wang, W.; Théato, P.; Kuo, S.-W.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), High Performance Humidity Fluctuation Sensor for Wearable Devices via a Bioinspired Atomic-Precise Tunable Graphene-Polymer Heterogeneous Sensing Junction. ***Chem. Mater.*****2018,** *30*, 4343−4354, DOI: 10.1021/acs.chemmater.8b01587.  (8) Li, P.; Zhang, D.; Zhang, Y.; **Lu, W.**[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Wang, W.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Ultrafast and Efficient Detection of Formaldehyde in Aqueous Solutions Using Chitosan-based Fluorescent Polymers. ***ACS Sens.*****2018,** *3*, 2394−2401, DOI: 10.1021/acssensors.8b00835.  (9) **Lu, W.**; Le, X. X.; Zhang, J. W.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Huang, Y. J.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Supramolecular shape memory hydrogels: a new bridge between stimuli-responsive polymers and supramolecular chemistry. ***Chem. Soc. Rev.*****2017**, *46*, 1284−1294, DOI: 10.1039/c6cs00754f.  (10) **Lu, W.**; Zhang, J. W.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1); Huang, Y. J.; Théato, P.; Huang, Q.; Chen, T.[\*](https://pubs.acs.org/doi/10.1021/cm052251i#cm052251iAF1), Self-diffusion Driven Ultrafast Detection of ppm-Level Nitro Aromatic Pollutants in Aqueous Media using a Hydrophilic Fluorescent Paper Sensor. ***ACS Appl. Mater. Interfaces*****2017**, *9*, 23884−23893, DOI: 10.1021/acsami.7b08826.  **2．授权专利** 一种比率型荧光高分子水凝胶在海鲜新鲜度检测中的应用，陈涛，刘浩，路伟，专利号为ZL202010321751.9，授权公告日为2022年1月25日. |
| **主要完成人** | 路伟，项目研究员，中国科学院宁波材料技术与工程研究所。 |
| **主要完成单位** | 中国科学院宁波材料技术与工程研究所 |
| 提名单位 | 中国科学院宁波材料技术与工程研究所 |
| 提名意见 | 路伟博士长期聚焦于荧光高分子水凝胶材料研究。针对此类材料“荧光变色范围窄、功能单一”等限制其发展应用的难题，重点围绕“荧光水凝胶的仿生结构构筑→多功能协同调控→应用拓展”思路开展研究，提出了“仿生多层结构设计”的材料构筑新策略，突破传统荧光高分子水凝胶普遍发光颜色单一的局限，获得多种荧光颜色几乎可在全可见光谱范围内连续调控的智能高分子水凝胶新材料；进而发展多材料宏观界面复合新方法，有效丰富了荧光变色水凝胶的功能性，研发了一系列多功能协同仿生智能荧光变色凝胶系统，并推动了其在智能显示、传感检测等前沿领域应用。基于以上研究，近5年在Adv. Mater.，Angew. Chem. Int. Ed.等杂志上发表第一/通讯论文20余篇（10篇IF＞10），3篇入选ESI高被引论文，1篇入选Cell Press 2021年十大最受关注物质科学论文，个人总被引2800余次，主持国家自然科学基金面上、青年项目、浙江省自然科学基金重大项目等10余项，承担国家重点研发计划任务，获宁波市科学技术进步二等奖，学术水平已在省内外同行中崭露头角，入选浙江省万人计划青年拔尖人才、中科院青促会和宁波市领军人才，受邀担任SCI期刊Adv. Polym. Tech.学术编辑。  此外，路伟博士学风严谨踏实，工作负责认真，乐于交流合作，具有不断创新的科学精神，因此郑重推荐参评宁波市青年科技创新奖，恳请给予大力支持！ |