

Full Publications List of Prof. De-Yi Wang

2025

1. Ghosh, Arnab; Tian, Sunan; Zhang, Mingyang; Gómez, Isaac Lorero; Chen, Qi; Islam, Monsur; Bhatia, Bhavika; Prolongo, Silvia González; Lochab, Bimlesh; Wang, De-Yi*. Deciphering a New Electrolyte Formulation for Intelligent Modulation of Thermal Runaway to Improve the Safety of Lithium-Ion Batteries. *Advanced Functional Materials*, 2025, 35(39), 2502761.
2. Shi, Xiao-Hui*; Jing, Cheng-Yue; Xie, Wei-Min; Luo, Huan; Liu, Qi-Yue; Wang, De-Yi*. Fabrication of guanidineacetic acid-based finishing agent for flame-retardant, hydrophobic, UV-resistant, and antibacterial cotton fabrics. *Chemical Engineering Journal*, 2025, 524, 169142.
3. Li, Ying-Ming*; Deng, Yao; Fang, Hang-Ping; Li, Yi-Ran; Wang, De-Yi*. Biomass-derived organic aerogels endowed flexible polyurethane foam with excellent flame retardance, smoke suppression, bacteriostasis and enhanced mechanical property. *Chemical Engineering Journal*, 2025, 521, 167036.
4. Chen, Qi; Ghosh, Arnab; Tang, Wei; Yin, Guang-Zhong; Fernández-Blázquez, Juan P; Zhang, Mingyang; Wang, De-Yi*. Alpha-cyclodextrin-based polyrotaxane combining phytate lithium salt as a novel bio-based flame-retardant solid polymer electrolyte for all-solid-state lithium metal batteries. *Chemical Engineering Journal* 2025, 512, 162376.
5. Tang, Wei; Ao, Xiang; Chen, Qi; Li, Zhiwei; Prolongo, Silvia González; Qian, Lijun*; Wang, De-Yi*. Advances in Flame-Retardant Strategies for Polypropylene: From Composites to Multifunctional Systems and/or Battery Applications. *Composites Part B: Engineering*, 2025, 312, 113239.
6. Schenk, Christina*; Hobson, Jose; Haranczyk, Maciej; Wang, De-Yi*. Data-driven design and green preparation of bio-based flame retardant polyamide composites. *Journal of Materials Chemistry A* 2025, 13, 26228-26243.
7. He, Lu; Bi, Qing-Qing; Ma, Yue; Wang, De-Yi*. Multidimensional performance evaluation of flame-retardant composites in warm mixed asphalt binders based on rheological properties and aging effects. *Materials Today Communications*, 2025, 48, 113274.
8. Yang, Xiao-Mei; Shi, Tao; Wang, Xiaodong; Liu, Huan*; Wang, De-Yi*; Yin, Guang-Zhong*. Typical Applications and Flame-Retardant Strategies for Organic Phase-Change Materials. *Carbon Energy* 2025, 7 (11), e70079.
9. Islam, Monsur*; Ordoño, Jesús; Tang, Wei; Monclús, Miguel; Echeverry-Rendón, Mónica; Wang, De-Yi*. Pyrolytic Carbon Microlattices from 3D-Printed Polyethylene Glycol Diacrylate and their In Vitro Assessment for Bone Regeneration. *Small Structures* 2025, 6 (10), 2500290.
10. Cai, Wei; Cui, Tianyang; Qi, Liangyuan; Wang, Junling; Wang, Wei; Cao, Chengfei; Shi, Shuo; Hu, Xin; Rahman, Mohammad Ziaur; Xing, Weiyi*; Wang, De-Yi*; Fei, Bin*. Fatty Alcohol-Based “Smart Windows” Driven by Photo-Thermal Materials Toward Thermal Management in Hot Regions and High Fire Safety. *Small* 2025, 2501540.
11. Tang, Wei; Chen, Qi; Li, Junxiao; Ao, Xiang; Liu, Yunhuan; Qian, Lijun*; Prolongo, Silvia González; Qiu, Yong; Wang, De-Yi*. Bi-Layered, Ultrathin Coating Initiated Relay Response to Impart Superior Fire Resistance for Polymeric and Metallic Substrates. 2025, *Nano-Micro Letters* 17 (1), 231.
12. Tang, Wei; Hobson, Jose; Chen, Qi; Li, Junxiao; Liu, Yunhuan; Prolongo, Silvia González; Qian, Lijun*; Wang, De-Yi*. Flame Retardant or Flame Accelerant? Impact of Matrix-Additives Interaction on Fire Safety in Silicone Resin. *Polymer Degradation and Stability*, 2025, 242, 111727.
13. Vega, Jimena De La; Vázquez-López, Antonio; Wang, De-Yi*. Enhancement of Poly (Lactic Acid) Fire Retardancy Through the Incorporation of Sludge Residue as a Synergistic Additive. *Polymers* 2025, 17 (20), 2717.
14. Zhou, Mei-Hui; Sánchez, Javier Gómez; Zhao, Zong-Quan; Ye, Wen; Prolongo, Silvia González; Wang, De-Yi*. High-Performance Bio-Based Epoxy Vitrimers with Tunable Thermal, Mechanical Properties and Recyclability. *Polymer*, 2025, 337, 128961.
15. Shi, Xiao-Hui*; Jing, Cheng-Yue; Luo, Huan; Liu, Qi-Yue; Wang, De-Yi*. Triazole-mediated phosphorus-containing protective coating for cotton fabric: excellent flame retardancy and smoke suppression performance. *Journal of Materials Science*, 2025,60, 14236.
16. Shi, Xiao-Hui*; Luo, Huan; Jing, Cheng-Yue; Liu, Qing-Yun; Wang, De-Yi*. Effectively enhancing the fire resistance and mechanical properties of basalt fiber/epoxy composites utilizing a novel piperazine phosphonate flame retardant. *Construction and Building Materials* 2025, 486, 141895.
17. Yin, Guang-Zhong*; Arévalo, Pedro Rincón; Serra, Javier; Sánchez del Río Saez, Jose; Molleja, Javier García; Sun, Longlong; Wang, De-Yi*. PLA/Boron nitride blending as support materials to fabricate PEG based form stable phase change materials. *Journal of Polymer Research* 2025, 32, 7, 253.
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20. Fang, Hang-Ping; Chen, Bing-Bing; Li, Yi-Ran; Deng, Yao; Li, Ying-Ming*; Wang, De-Yi*. The upcycle of waste asphalt concrete toward highly efficient microwave absorbing and flame-retarding composites. *Ceramics International* 2025, 51, 38436.
21. Xu, Jie; Sánchez del Río Saez, Jose; Vázquez-López, Antonio; Cruz, Carlos; Vega, Jimena de la; Collado, Ignacio; Liang, Feng; Wu, Jianjun; Wang, De-Yi*. Fully Fabric Triboelectric Nanogenerators Based on SWCNH-Coated Cotton Fabric/UHMWPE: IoT Sensing. *ACS Appl. Electron. Mater.* 2025, 7, 12, 5442–5450.
22. Pan, Ye-Tang*; Li, Tianyu; Cao, Jin; Wang, De-Yi; Yang, Rongjie. Advances in reticular materials for flame retardant polymers. *International Materials Reviews*, 2025, 09506608251345756.
23. He, Lu; Bi, Qing-Qing; Ma, Yue; Wang, De-Yi*. Effects of flame-retardant nanocomposite combined with warm mix asphalt techniques on molecular conversion and fire safety. *Reactive and Functional Polymers*, 2025, 215, 106353.
24. Xu, Jie; Vázquez-López, Antonio; Sánchez del Río Saez, Jose; Vega, Jimena de la; Collado, Ignacio; Prolongo, Silvia González; Giannetti, Romano; Wu, Jianjun; Wang, De-Yi*. Single-Walled Carbon Nanohorns Functionalization of PVA/PDMS for Flexible Triboelectric Nanogenerators: IoT Remote Gait Sensor. *Polymer Composites* 2025, 46, 15, 14310.
25. Wang, Yi-Song; Ye, Wen; Jiang, Yan; Wang, De-Yi*. Triethylenetetramine-Modified Ammonium Polyphosphate as Charring Agent for Enhanced Flame Retardancy in Ethylene Vinyl Acetate Copolymer. *Advanced Industrial and Engineering Polymer Research* 2025, 8, 3, 433-442.
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28. Shi, Xiao-Hui*; Shi, Hong; Luo, Huan; Jing, Cheng-Yue; Wang, De-Yi*. Synthesis of a cytosine-derived phosphorus-nitrogen flame retardant and its application in cotton fabrics. *International Journal of Biological Macromolecules* 2025, 308, 142463.
29. He, Lu; Bi, Qing-Qing; Ma, Yue; Wang, De-Yi*. Efficiently fire-safe asphalt achieved via synergistic effect of ferrocene and halloysite nanotube. *Reactive and Functional Polymers* 2025, 210, 106197.
30. Li, Han; Li, Zhi*; Du, Jia-Wei; Zhou, Ao-Yun; Zhang, Fei-Yang; Tian, Song; Hu, Zhi; Wang, De-Yi*. A bio-based dual-effect iron-derived supermolecule enabling fire-safe and mechanically reinforced epoxy. *Sustainable Materials and Technologies* 2025, 43, e01196.
31. Chen, Qi; Tang, Wei; Gu, Tengting; Wang De-Yi*. Bifunctional Polyrotaxane-Based Electrolytes Enable Long-Cycling and Fire-Safe All-Solid-State Lithium Metal Batteries. *Advanced Functional Materials* 2025, e26101.
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33. Sánchez del Río Saez, Jose*; Aragonés, Víctor; Villaluenga, Tomás Sánchez; Davila-Gomez, L; Martínez, Sofía Paramio; Vázquez-López, Antonio; Ballesteros, Yolanda; Martínez, Vanesa; Jiménez, José Luis; Yusuf, Abdulmalik; Li, Xiaolu; Ao, Xiang; Xu, Jie; Wang, De-Yi. Wi-Fi/LoRa communication systems for fire and seismic-risk mitigation and health monitoring. *Frontiers in Detector Science and Technology* 2025, 3, 1484647.
34. Ozdemir, Burcu; Hernández-del-Valle, Miguel; Schenk, Christina; Wang, De-Yi; Haranczyk, Maciej*. Bayesian Optimization Guiding the Experimental Mapping of the Pareto Front of Mechanical and Flame-Retardant Properties in Polyamide Nanocomposites. *Advanced Intelligent Discovery*, 202500054.
35. Ordoño, Jesús; Islam, Monsur; Lantada, Andrés Díaz; Echeverry-Rendón, Mónica*; Wang, De-Yi*. Evaluation of laser-induced graphene for skeletal muscle tissue engineering applications. *Biomaterials Science* 2025, 13, 3242-3251.
36. Ao, Xiang; Crouse, Robert; Guerrero-Muñoz, Gloria; Wang, De-Yi*. A facile biomass-based coating for flax fabric toward plant fiber/biobased epoxy composite with enhanced fire safety. *Polymer Degradation and Stability* 2025, 231, 111057.

2024

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 - Bi, Xue; Song, Kunpeng; Zhang, Henglai; Pan, Ye-Tang*; He, Jiyu; Wang, De-Yi; Yang, Rongjie*. Dimensional change of red phosphorus into nanosheets by metal–organic frameworks with enhanced dispersion in flame retardant polyurea composites. *Chemical Engineering Journal*, 2024, 148997.
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 - Ozdemir, Burcu; Hernández-del-Valle, Miguel; Gaunt, Maggie; Schenk, Christina; Lucía, Echevarría-Pastrana; Fernández-Blázquez, Juan Pedro; Wang, De-Yi; Haranczyk, Maciej* Toward 3D printability prediction for thermoplastic polymer nanocomposites: Insights from extrusion printing of PLA-based systems. *Additive Manufacturing*. 2024, 95, 104533.
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 - Cao, Jin; Pan, Ye-Tang*; Vahabi, Henri; Song, Pingan; Wang, De-Yi Zeolitic imidazolate frameworks-based flame retardants for polymeric materials. *Materials Today Chemistry*. 2024, 37, 102015.
 - Bi, Qing-Qing; Li, Ying-Ming*; He, Lu; Wang, De-Yi* Fabrication of fire-retarded epoxy asphalt composites with compatibilization and toughening for road tunnel pavements. *Polymer Degradation and Stability* 2024, 229, 110968.
 - Xu, Jie; Liu, Xiangrong; Wang, Li; Zhu, Yingkun; Ao, Xiang; Guo, Fanhui; Xie, Zhipeng; Liang, Feng; Wang, De-Yi*; Wu, Jianjun* Designing of carbon nanohorn-based heterostructure for improved mechanical properties, flame retardancy, and hydrophobicity of composite aerogels. *Journal of Polymer Science* 2024, 62 (20), 4773-4788.
 - Zhang, Mingyang; Yusuf, Abdulmalik; Wang, De-Yi* A Novel Hierarchical “Ceramic in Polymer – Polymer in Ceramic” Structure Composite Solid-state Electrolyte for Safer Lithium-Ion Batteries. *Journal of Power Sources*, 2024, 591: 233812.
 - Xu, Jin; Jing, Zhang; Wang, Bin*; Li, Xiaolu; Jing, Zeng; Ma, Jiayu; Zhao, Ximeng; Wu, Wenqi; Sánchez del Río Saeza, José; Zhang, Xiuqin*; Wang, De-Yi; Wang, Rui. Multifunctional polylactic acid sensing fabric based on biomass flame retardants for intelligent fire early-warning. *International Journal of Biological Macromolecules*. 2024, 259, 129158.
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 - Zhou, Mei-Hui; Ao, Xiang; Islam, Monsur; Liu, Yu-Yao; Prolongo, Silvia González; Wang, De-Yi* Bio-based epoxy vitrimer with inherent excellent flame retardance and recyclability via molecular design. *International Journal of Biological Macromolecules*. 2024, 129363.
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25. Li, Ying-Ming*; Li, Yi-Ran; Fang, Hang-Ping; Wang, De-Yi* Fabrication of multi-dimensional heterostructure towards highly efficient microwave absorbing performance and flame retardancy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 2024, 695, 134222.
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28. Li, Zhi*; Chen, Si-Fan; Tang, En; Zhang, Fei-Yang; Li, Han; Hu, Bingbing; Zeng, Qingwen; Wang, De-Yi* Isomerism-enabling low-temperature ultrasensitive and moisture-resistant fire-alarming “Guarder” via color changing. *Polymer Degradation and Stability*. 2024, 115, 110831.
29. Jing, Zhang; Zhang, Xiuqin; Wang, Rui; Wang, Wenqing; Zhao, Hui; Yang, Shuo; Zhenfeng, Dong; Wang, De-Yi; Pan, Ye-Tang* Cyclodextrin-based host-guest hierarchical fire retardants: Synthesis and novel strategy to endow polylactic acid fire retardancy and UV resistance. *Carbohydrate Polymers*. 2024, 341, 122313.
30. Luis, De Hoyos-Martinez Pedro*; Barriga, Mendez Sebastian; Corro, Martinez Eriz; Wang, De-Yi; Jalel, Labidi* Elaboration of Thermally Performing Polyurethane Foams, Based on Biopolyols, with Thermal Insulating Applications. *Polymers*. 2024, 16(2), 258.
31. Hu, Shuang-Lin; Li, Ying-Ming*; Fang, Hang-Ping; Deng, Yao; Wang, De-Yi* Organic-inorganic hybrid modified the halloysite nanotube: Toward vinyl ester resin composites with enhanced flame retardance and mechanical property. *Colloids and Surfaces A: Physicochemical and Engineering*, 2024, 697, 134412.
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34. Han, Zhengde; Song, Xiaoning; Chen, Ziyang; Pan, Ye-Tang*; Lai, Xuejun*; Wang, De-Yi Half etching of ZIF-67 towards open hollow nanostructure with boosted absorption ability for toxic smoke and fume in epoxy composites. *Sustainable Materials and Technologies*. 2024, 41, e01024.
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36. Xu, Jie; Ao, Xiang; Jimena, de la Vega; Fanhui, Guo; Xie, Zhipeng; Liang, Feng; Wang, De-Yi*; Wu, Jianjun* Poly(vinyl alcohol) Composite Aerogel toward Lightweight, Remarkable Flame Retardancy, and Thermal Insulation Properties by Incorporating Carbon Nanohorns and Phytic Acid. *ACS Applied Polymer Materials*. 2024, 6, 8027-8039.
37. Shi, Xiao-Hui*; Xie, Wei-Min; Shi, Hong; Wu, Shi-Jie; Liu, Qing-Yun; Wang, De-Yi* Preparation of phosphorus-containing organic-hybrid layered double hydroxide as a flame retardant for thermoplastic polyurethane. *Applied Clay Science*. 2024, 258: 107489.
38. Ghosh, Arnab; Sukhman, Kaur; Gulshan, Verma; Christian, Dolle; Raheleh, Azmi; Stefan, Heissler; M., Eggeler Yolita; Kunal, Mondal; Dario, Mager; Ankur, Gupta; G., Korvink Jan*; Wang, De-Yi; Ashutosh, Sharma*; Islam, Monsur* Enhanced Performance of Laser-Induced Graphene Supercapacitors via Integration with Candle-Soot Nanoparticles. *ACS Applied Materials & Interfaces*. 2024, 16, 40313-40325.
39. Xiao, Junchen; Haranczyk, Maciej*; Wang, De-Yi* Prediction of mechanical and flame-retardant properties of MOF-loaded polymer composites. *Chemical Communications*. 2024, 60, 13215-13218.
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2023

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3. Tang, Wei; Qian, Lijun*; Prolongo Silvia González; Wang, De-Yi* Dendritic Copolymers from P-, N- and Si-based Monomer and Melamine Phosphate Generate Thermal Deformation Toughening and a Rapid Charring Flame Retardant Effect in Polypropylene. *Chemical Engineering Journal*, 2023, 471, 144716.
4. Song, Kunpeng; Pan, Ye-Tang*; Jing, Zhang; Pingan, Song; He, Jiyu*; Wang, De-Yi; Yang, Rongjie. Metal–Organic Frameworks–Based Flame-Retardant System for Epoxy Resin: A Review and Prospect. *Chemical Engineering Journal*, 2023, 468, 143653.
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