Publications in Peer-Reviewed Journals

Spectroscopy & Dynamics in the Condensed Phases (2011-now)

◆ 2020 (–)

[63] DOI: 10.1016/j.nanoen.2019.104421
Efficient Infrared Light Induced CO₂ Reduction with Nearly 100% CO Selectivity Enabled by Metallic CoN Porous Atomic Layers

Structure Defects Promoted Exciton Dissociation and Carrier Separation for Enhancing Photocatalytic Hydrogen Evolution
Applied Catalysis B: Environmental 2020, 264, 118480.

◆ 2019 (9)

[61] DOI: 10.1002/adfm.201908073
Increasing Photothermal Efficacy by Simultaneous Intra- and Intermolecular Fluorescence Quenching
Advanced Functional Materials 2019, 29(51), 1908073.

[60] DOI: 10.1063/1674-0068/cjcp1905105
Energy Transfer and Electron Transfer in Composite System of Carbon Quantum Dots/Rhodamine B Molecules
K. Wei, L. Zhang, S.-L. Jiang, and Q. Zhang*

[59] DOI: 10.1002/anie.201907074
Switching on the Photocatalysis of Metal–Organic Frameworks by Engineering Structural Defects
X. Ma (eq), L. Wang (eq), Q. Zhang*, and H.-L. Jiang*

[58] DOI: 10.1021/jacs.9b05239
Metal–Organic Framework Coating Enhances the Performance of CuO in Photoelectrochemical CO₂ Reduction
Journal of the American Chemical Society 2019, 141(27), 10924–10929.

[57] DOI: 10.1021/acs.jpcllett.9b01020
Efficient Exciton Dissociation in Heterojunction Interfaces Realizing Enhanced Photoresponsive Performance

[56] DOI: 10.1039/C9SC00954J
Rational Design of Functional Materials Guided by Single Particle Chemiluminescence Imaging
Chemical Science 2019, 10(21), 5444–5451.

[55] DOI: 10.1038/s42004-019-0117-4
Atomic Palladium on Graphitic Carbon Nitride as a Hydrogen Evolution Catalyst under Visible Light Irradiation
Communications Chemistry 2019, 2, 18.

DOI: 10.1021/jacs.8b11447

Few-Nanometer-Sized α-CsPbI$_3$ Quantum Dots Enabled by Strontium Substitution and Iodide Passivation for Efficient Red-Light Emitting Diodes

** 2018 (9)

Efficient and Color-Tunable Quasi-2D CsPbBr$_x$Cl$_{3-x}$ Perovskite Blue Light-Emitting Diodes
ACS Photonics 2019, 6(3), 667–676.

Location Effect in a Photocatalytic Hybrid System of Metal–Organic Framework Interface with Semiconductor Nanoparticles
Q.-C. Shang, X.-Z. Fang, H.-L. Jiang, and Q. Zhang*

Room Temperature Precipitated Dual Phase CsPbBr$_3$–CsPb$_2$Br$_5$ Nanocrystals for Stable Perovskite Light Emitting Diodes
B.-S. Zhu, H.-Z. Li, J. Ge, H.-D. Li, Y.-C. Yin, K.-H. Wang, C. Chen, J.-S. Yao, Q. Zhang, and H.-B. Yao*
Nanoscale 2018, 10(41), 19262–19271.

Experimental Identification of Ultrafast Reverse Hole Transfer at the Interface of the Photoexcited Methanol/Graphitic Carbon Nitride System
Z.-W. Chen, Q. Zhang*, and Y. Luo*

Graphene Grown on Anatase-TiO$_2$ Nanosheets: Enhanced Photocatalytic Activity on Basis of a Well-Controlled Interface

Ce$^{3+}$-Doping to Modulate Photoluminescence Kinetics for Efficient CsPbBr$_3$ Nanocrystals Based Light-Emitting Diodes
Journal of the American Chemical Society 2018, 140(10), 3626–3634.

Optically Switchable Photocatalysis in Ultrathin Black Phosphorus Nanosheets
Journal of the American Chemical Society 2018, 140(9), 3474–3480.
Publications in Peer-Reviewed Journals

[46] DOI: 10.1021/jacs.7b10997
Oxygen-Vacancy-Mediated Exciton Dissociation in BiOBr for Boosting Charge-Carrier-Involved Molecular Oxygen Activation

[45] DOI: 10.1002/adma.201705112
Single Pt Atoms Confined into a Metal–Organic Framework for Efficient Photocatalysis
X.-Z. Fang (eq), Q.-C. Shang (eq), Y. Wang (eq), L. Jiao, T. Yao, Y.-F. Li, Q. Zhang, Y. Luo, and H.-L. Jiang*
Advanced Materials 2018, 30(7), 1705112.

[44] DOI: 10.1063/1674-0068/31/cjcp1710196
Mechanistic Insights into the Fluorescence Quenching of Rhodamine 6G by Graphene Oxide
L. Chen, L. Zhang, S.-L. Jiang, and Q. Zhang*

[43] DOI: 10.1021/acs.jpcllett.7b02449
Impact of Element Doping on Photoexcited Electron Dynamics in CdS Nanocrystals
L. Zhang, Q. Zhang*, and Y. Luo*

[42] DOI: 10.1002/cptc.201700051
Determining the Charge-Transfer Direction in a p–n Heterojunction BiOCl/g-C₃N₄ Photocatalyst by Ultrafast Spectroscopy
Z.-W. Chen, Q. Zhang*, and Y. Luo*

[41] DOI: 10.1021/acs.jpcllett.7b01083
Great Disparity in Photoluminescence Quantum Yields of Colloidal CsPbBr₃ Nanocrystals with Varied Shape: The Effect of Crystal Lattice Strain

[40] DOI: 10.1039/c7pp00044h
Proton-Coupled Charge-Transfer Reactions and Photoacidity of N,N-Dimethyl-3-Arylpropan-1-Ammonium Chloride Salts
T. M. Safko, S.-L. Jiang, I. Zhang, Q. Zhang, and R. G. Weiss*
Photochemical & Photobiological Sciences 2017, 16(6), 972–984.

[39] DOI: 10.1021/jacs.7b02290
Defect-Mediated Electron–Hole Separation in One-Unit-Cell ZnIn₂S₄ Layers for Boosted Solar-Driven CO₂ Reduction
Journal of the American Chemical Society 2017, 139(22), 7586–7594.

[38] DOI: 10.1039/C7SC00307B
Insights into the Excitonic Processes in Polymeric Photocatalysts
Chemical Science 2017, 8(5), 4087–4092.
Publications in Peer-Reviewed Journals

[37] DOI: 10.1039/c7cp00973a
Interfacially Al-Doped ZnO Nanowires: Greatly-Enhanced Near Band Edge Emission through Suppressed Electron–Phonon Coupling and Confined Optical Field

[36] DOI: 10.1063/1.5011204
Surface Plasmon Assisted Directional Rayleigh Scattering

◆ 2016 (10)

[35] DOI: 10.1021/acs.jpcl.6b01903
Retrieving the Rate of Reverse Intersystem Crossing from Ultrafast Spectroscopy
J.-H. Hu, Q. Zhang*, and Y. Luo*

[34] DOI: 10.1002/cctc.201600504
In Situ Integration of a Metallic 1T-MoS2/CdS Heterostructure as a Means to Promote Visible-Light-Driven Photocatalytic Hydrogen Evolution
Q. Liu (eq), Q.-C. Shang (eq), A. Khalil (eq), Q. Fang, S.-M. Chen, Q. He, T. Xiang, D.-B. Liu, Q. Zhang*, Y. Luo, and L. Song*

[33] DOI: 10.1002/adma.201601413
Enhanced Singlet Oxygen Generation in Oxidized Graphitic Carbon Nitride for Organic Synthesis
Advanced Materials 2016, 28(32), 6940–6945.

[32] DOI: 10.1021/acs.201603990
Insight into Electrocatalysts as Co-Catalysts in Efficient Photocatalytic Hydrogen Evolution
ACS Catalysis 2016, 6(7), 4253–4257.

[31] DOI: 10.1017/hpl.2016.23
Unraveling Surface Plasmon Decay in Core–Shell Nanostructures toward Broadband Light-Driven Catalytic Organic Synthesis
Publications in Peer-Reviewed Journals

Zhang*, Y. Luo, and Y.-J. Xiong*  

[28] DOI: 10.1021/anie.201602543  
Enhanced Photoexcited Carrier Separation in Oxygen-Doped ZnIn$_2$S$_4$ Nanosheets for Hydrogen Evolution  

[27] DOI: 10.1002/adma.201505281  
Single-Atom Pt as Co-Catalyst for Enhanced Photocatalytic H$_2$ Evolution  
Advanced Materials 2016, 28(12), 2427–2431. (Highly Cited Paper)

[26] DOI: 10.1002/adma.201501642  
Oxyhydroxide Nanosheets with Highly Efficient Electron–Hole Pair Separation for Hydrogen Evolution  

[25] DOI: 10.1021/jacs.5b08773  
Journal of the American Chemical Society 2015, 137(42), 13440–13443. (Highly Cited Paper)

[24] DOI: 10.1038/ncomms9647  
Molecular Co-Catalyst Accelerating Hole Transfer for Enhanced Photocatalytic H$_2$ Evolution  
Nature Communications 2015, 6, 8647.

[23] DOI: 10.1002/smll.201501611  
Rupturing C$_{60}$ Molecules into Graphene-Oxide-Like Quantum Dots: Structure, Photoluminescence, and Catalytic Application  
Small 2015, 11(39), 5296–5304.

[22] DOI: 10.1002/adma.201502748  
A New Cubic Phase for a NaYF$_4$ Host Matrix Offering High Upconversion Luminescence Efficiency  
Advanced Materials 2015, 27(37), 5528–5533.

[21] DOI: 10.1021/anie.201505442  
A Unique Ternary Semiconductor–(Semiconductor/Metal) Nano-Architecture for Efficient Photocatalytic Hydrogen Evolution  

[20] DOI: 10.1039/c3ra4240k  
Remarkable Enhancement of Photovoltaic Performance of ZnO/CdTe Core–Shell Nanorod Array Solar Cells through Interface Passivation with a TiO$_2$ Layer
Publications in Peer-Reviewed Journals

RSC Advances 2015, 5(88), 71883–71889.

[19] DOI: 10.1002/anie.201503410
Atomic-Layer-Confined Doping for Atomic-Level Insights into Visible-Light Water Splitting
F.-C. Lei (eq), L. Zhang (eq), Y.-F. Sun*, L. Liang, K.-T. Liu, J.-Q. Xu, Q. Zhang*, B.-C. Pan, Y. Luo, and Y. Xie*

[18] DOI: 10.1021/jacs.5b03612
Visible-Light Photoexcited Electron Dynamics of Scandium Endohedral Metallofullerenes: The Cage Symmetry and Substituent Effects
Journal of the American Chemical Society 2015, 137(27), 8769–8774.

[17] DOI: 10.1039/c5cs00064e
Steering Charge Kinetics in Photocatalysis: Intersection of Materials Syntheses, Characterization Techniques and Theoretical Simulations
S. Bai, J. Jiang, Q. Zhang, and Y.-J. Xiong*
Chemical Society Reviews 2015, 44(10), 2893–2939. (Back Cover) (Highly Cited Paper)

[16] DOI: 10.1039/C5CP00323G
Bringing Light into the Dark Triplet Space of Molecular Systems
Physical Chemistry Chemical Physics 2015, 17(19), 13129–13136.

Efficient and Tunable Fluorescence Energy Transfer via Long-Lived Polymer Excitons
Polymere Chemistry 2015, 6, 1698–1702.

[14] DOI: 10.1002/mark.201400529
Polymerization-Enhanced Intersystem Crossing: New Strategy to Achieve Long-Lived Excitons
X.-X. Sun, X.-J. Wang, X.-Y. Li, J. Ge, Q. Zhang*, J. Jiang*, and G.-Q. Zhang*

◆ 2014 (6)

A Unique Semiconductor–Metal–Graphene Stack Design to Harness Charge Flow for Photocatalysis
S. Bai (eq), J. Ge (eq), L.-L. Wang, M. Gong, M.-S. Deng, Q. Kong, L. Song, J. Jiang*, Q. Zhang*, Y. Luo, Y. Xie, and Y.-J. Xiong*
Advanced Materials 2014, 26(32), 5689–5695. (Inside Front Cover)

[12] DOI: 10.1002/adma.201400428
Integration of an Inorganic Semiconductor with a Metal–Organic Framework: A Platform for Enhanced Gaseous Photocatalytic Reactions
Advanced Materials 2014, 26(28), 4783–4788. (Inside Back Cover) (Highly Cited Paper)

Designing p-Type Semiconductor–Metal Hybrid Structures for Improved Photocatalysis
Publications in Peer-Reviewed Journals

Xiong*

Fluorescent Switch for Fast and Selective Detection of Mercury (II) Ions in Vitro and in Living Cells and a Simple Device for Its Removal
Talanta 2014, 125, 204–209.

[09] DOI: 10.1029/C3TA14539E
Improving the Photovoltaic Performance of Solid-State ZnO/CdTe Core–Shell Nanorod Array Solar Cells Using a Thin CdS Interfacial Layer

[08] DOI: 10.1002/anie.201309660
Tunable Oxygen Activation for Catalytic Organic Oxidation: Schottky Junction versus Plasmonic Effects

◆ 2013–2011 (7)

[07] DOI: 10.1021/ja407110r
The Realistic Domain Structure of As-Synthesized Graphene Oxide from Ultrafast Spectroscopy
Journal of the American Chemical Society 2013, 135(33), 12468–12474.

[06] DOI: 10.1063/1674-0068/26/03/252-258
How Graphene Oxide Quenches Fluorescence of Rhodamine 6G
Chinese Journal of Chemical Physics 2013, 26(3), 252–258. (Most Downloaded Paper)

[05] DOI: 10.1103/PhysRevLett.109.253901
Coherent Random Fiber Laser Based on Nanoparticles Scattering in the Extremely Weakly Scattering Regime

[04] DOI: 10.1016/j.optcom.2012.05.048
Random Fiber Laser of POSS Solution-Filled Hollow Optical Fiber by End Pumping

[03] DOI: 10.1002/jrs.2923
Phase-Locking of Two Independent Degenerate Coherent Anti-Stokes Raman Scattering Processes: Concept, Proposed All-Optical Implementation, and Potential Applications
Q. Zhang*

[02] DOI: 10.1364/OL.36.001902
Optical Amplification of Eu(TTA)3Phen Solution-Filled Hollow Optical Fiber
Publications in Peer-Reviewed Journals


DOI: 10.1364/OE.19.004991
Laser-Launched Evanescent Surface Plasmon Polariton Field Utilized as a Direct Coherent Pumping Source to Generate Emitted Nonlinear Four-Wave Mixing Radiation
Q. Zhang*, K. Lin, and Y. Luo
Optics Express 2011, 19(6), 4991–5001.
Publications in Peer-Reviewed Journals

Spectroscopy & Dynamics in the Gas Phase (selected)

[26] DOI: 10.1016/j.jms.2015.05.002
The Laser-Induced Fluorescence Spectroscopy of Yttrium Monosulfide
J.-Z. Zang, Q. Zhang*, D.-P. Zhang, C.-B. Qin, Q. Zhang, and Y. Chen*
Journal of Molecular Spectroscopy 2015, 313(1), 49–53.

Note: Vibrationally Mediated Photodissociation of Carbon Dioxide Cation
Journal of Chemical Physics 2013, 139(16), 166101.

Note: Observation of a New Electronically Excited State of Cobalt Monoxide
Journal of Chemical Physics 2012, 137(20), 206101.

[23] DOI: 10.1039/c2cp22385f
Mode Specific Photodissociation of CS$_2$ via the A$^2$Π$_u$ State: A Time-Sliced Velocity Map Imaging Study
C.-M. Zhang, J.-L. Li, Q. Zhang*, Y. Chen*, C.-S. Huang*, and X.-M. Yang

[22] DOI: 10.1063/1.3671368
Multiphoton Dissociative Ionization of Tert-Pentyl Bromide Near 265 nm
R. Mao, Q. Zhang*, J.-Z. Zang, C. He, M. Chen, and Y. Chen*
Journal of Chemical Physics 2011, 135(24), 244302.

Note: Single-Ultraviolet-Photon Dissociation Dynamics of CS$_2$(X$^3$Π$_g$) in 227–243 nm Revealed by Time-Sliced Velocity Map Imaging
J.-L. Li, C.-M. Zhang, Q. Zhang*, Y. Chen*, C.-S. Huang*, and X.-M. Yang
Journal of Chemical Physics 2011, 135(11), 116102.

[20] DOI: 10.1063/1.3567071
[1 + 1] Photodissociation of CS$_2$(X$^3$Π$_g$) via the Vibrationally Mediated B$^2$Σ$_u^+$ State: Multichannels Exhibiting and Mode Specific Dynamics
J.-L. Li, C.-M. Zhang, Q. Zhang*, Y. Chen*, C.-S. Huang*, and X.-M. Yang
Journal of Chemical Physics 2011, 134(11), 114309.

[19] DOI: 10.1063/1.3480395
Reaction of C$_2$(a$^3$Π$_g$) with Methanol: Temperature Dependence and Deuterium Isotope Effect
R.-Z. Hu, Q. Zhang*, and Y. Chen*
Journal of Chemical Physics 2010, 133(11), 114306.

[18] DOI: 10.1063/j.1plets.2010.05.073
Spectroscopy of Nickel Monosulfide in 450–560 nm by Laser-Induced Fluorescence and Dispersed Fluorescence Techniques
L. Wang, J.-F. Zhen, J.-Q. Gao, Q. Zhang*, and Y. Chen*

[17] DOI: 10.1063/1.3400070
Reactions of C$_2$(a$^3$Π$_g$) with Selected Saturated Alkanes: A Temperature Dependence Study
R.-Z. Hu, Q. Zhang*, and Y. Chen*
Publications in Peer-Reviewed Journals


Absorption Spectra of AsH$_2$ Radical in 435–510 nm by Cavity Ringdown Spectroscopy
D.-F. Zhao, C.-B. Qin, M. Ji, Q. Zhang, and Y. Chen*

Photolysis of N-Butyl Nitrite and Isoamyl Nitrite at 355 nm: A Time-Resolved Fourier Transform Infrared Emission Spectroscopy and Ab Initio Study
M. Ji, J.-F. Zhen, Q. Zhang*, and Y. Chen*

[14] DOI: 10.1063/1.3103645
Laser-Induced Atomic Fragment Fluorescence Spectroscopy: A Facile Technique for Molecular Spectroscopy of Spin-Forbidden States
Q. Zhang*, Y. Chen, and M. Keil*

[13] DOI: 10.1016/j.jms.2009.03.004
Laser-Induced Fluorescence Spectroscopy of FeS in the Visible Region
S.-H. Zhang, J.-F. Zhen, Q. Zhang, and Y. Chen*

[12] DOI: 10.1364/OL.33.001893
On the Photofragmentation of SF$_2$+: Experimental Evidence for a Predissociation Channel
Q. Zhang*, R. Mao, and Y. Chen

In Situ Accurate Determination of the Zero Time Delay between Two Independent Ultrashort Laser Pulses by Observing the Oscillation of an Atomic Excited Wave Packet
Q. Zhang* and J. W. Hepburn

[10] DOI: 10.1016/j.jms.2008.06.014
The Laser-Induced Fluorescence Study of A^3Σ⁺–X^3Π Band System of CuS
S.-H. Zhang, J.-F. Zhen, Q. Zhang, and Y. Chen*

[09] DOI: 10.1103/PhysRevA.78.021403
Observation of Above-Threshold Dissociation of Na$_a^+$ in Intense Laser Fields
Q. Zhang*, J. W. Hepburn, and M. Shapiro
Physical Review A (Rapid Communications) 2008, 78(2), 021403(R).

[08] DOI: 10.1063/1.2889382
Observation of the 5p Rydberg States of Sulfur Difluoride Radical by Resonance-Enhanced Multiphoton Ionization Spectroscopy
Q. Zhang*, X.-G. Zhou, Q.-X. Li, S.-Q. Yu, and X.-X. Ma

[07] DOI: 10.1063/1.2168153
Threshold Ion-Pair Production Spectroscopy of HCN
Q. J. Hu, Q. Zhang, and J. W. Hepburn*
Publications in Peer-Reviewed Journals


[06] DOI: 10.1364/JOSAB.20.002255

Coherent Control and Phase Locking of Two-Photon Processes in the Nanosecond Domain

Q. Zhang, M. Keil*, and M. Shapiro  

[05] DOI: 10.1016/S0368-2048(00)00136-5

Study on the Resonance-Enhanced Multiphoton Ionization of the 4s and C States of SF₆ Radicals


[04] DOI: 10.1016/S0009-2614(99)00368-1

A New Excited Electronic State of SF₆ Radical Observed by Resonance-Enhanced Multiphoton Ionization


[03] DOI: 10.1117/12.308412

Resonance-Enhanced Multiphoton Ionization Spectroscopy of SF₆ Radical


[02] DOI: 10.1021/jp981769p

Electronic Band Systems of SF₆ Radical Observed by Resonance-Enhanced Multiphoton Ionization

Q.-X. Li, J.-N. Shu, Q. **Zhang**, S.-Q. Yu, L.-M. Zhang, C.-X. Chen, and X.-X. Ma*  


Kinetic Studies on State-State Coupling and Collisional Quenching of Excited Sulfur Dioxide

Q. **Zhang**, C.-X. Chen*, S.-Q. Yu, and X.-X. Ma  