Tie-Jun Wang, PhD

Senior scientist
Center for Optics, Photonics, and Laser (COPL)
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From July 1st, 2013
Professor
Shanghai Institute of Optics and fine Mechanics
Chinese Academy of Sciences
No. 390, Qinghe Road, Jiading District, Shanghai 201800 China

Curriculum Vitae

Research Interests

- Nonlinear optical crystals and their frequency Conversions
- Mid-Infrared tunable lasers
- Few-cycle femtosecond lasers and OPCPA
- Physics and applications of femtosecond laser filamentation
- Laser filament based THz generations, detections and nonlinear THz optics

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Education

- PhD in Optics, Jilin University, China, 2007
- Bachelor in Optics, Jilin University, China, 2002

Research Experiences

10/2008--now **Postdoctoral researcher and senior scientist supervised in Ultrafast Intense Laser Science Lab at Center for Optics, Photonics and Laser (COPL) in Laval University, Canada**.
Research focus on ultrafast intense laser science: filamentation and application; Filamentation THz pulse generation.

08/2007--10/2008 **Postdoctoral researcher in the laboratory of attosecond and high-field physics at Max-Planck-Institute of Quantum Optics, Germany.**

Research focus on Broadband short-pulse OPA, Idler-based phase-stable seed generation for petawatt-field synthesizer (PFS), Development and frequency doubling of a ps Yb:YAG pump laser for PFS.

02/2004--05/2005 **Research assistant on solid-state lasers and their applications in North China Research Institute of Electro-optics (NCRIEO), Beijing, China.**
Research focus on solid-state laser technologies: Q-switched and mode-locking Nd:YAG, Er:Cr:YSGG, Er:YAG lasers, measurement of damage level for optics, and some industry applications, for example, laser engraving, laser marking.

09/2002--07/2007 **Research assistant in College of Physics, Jilin University, China.**
Research focus on mid-infrared nonlinear crystals; tunable CO_2 laser and its frequency doubling; mid-infrared, ultra-broad bandwidth tunable optical parametric oscillator.

Academic Honors/Awards

2012: Invited session chairs for Mini-Symposium on Ultrafast Intense Laser Science, Quebec, July 19-21, 2012 and 21th International Laser Physics Workshop, Calgary, July 23-27, 2012 in Canada.

2010: 1st ISUILS Award for Young Researchers (Sponsored by Japan Intense Light Field Science Society (JILS), ISUILS, International Symposium on Ultrafast Intense Laser Science);

2010: Invited session chair of high field physics and biology in the international symposium on chirped pulse amplification, Laval University, Quebec city, Canada, November 17-21, 2010.

2009: Nominations of National Top 100 Outstanding Doctor Dissertations in China;
Outstanding Doctor Dissertations of Jilin Province in China;
First Rank of Outstanding Doctor Dissertations of Jilin University in China;

2007- 2008: Max Planck Society Postdoctoral Fellowships, Germany；

2006: Qiu Shi Scholarship for Postgraduates by Hong Kong Qiu Shi Science and Technology Foundation, China

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Professional Service

- Referee for **Applied Physics Letters, New Journal of Physics, Optics Letters**, **Optics Express**, **IEEE Journal of Quantum Electronics**, **Journal of Physics D: applied physics**, **Europhysics Letters, Journal of Optics**, and **Journal of Alloys and Compounds**

Selected, Peer-Reviewed Publications

- **Journal Papers**

18. Bin Zeng, **Tie-Jun Wang,*** Sima Hosseini, Ya Cheng, Zhizhan Xu, Weiwei Liu, and See Leang Chin, "Enhancement of fluorescence signal in remote filament-induced breakdown spectroscopy with spatio-temporally chirped pulses," **Journal of the Optical Society of America B 29**, 3226 (2012).

17. **Tie-Jun Wang,*** Huailiang Xu, Jean-François Daigle, Aravindan Sridharan, Shuai Yuan, and See Leang Chin, "Water vapor concentration measurement in air using filament-induced fluorescence spectroscopy," **Optics Letters 37**, 1706 (2012); **Virtual Journal of Ultrafast Science**, Volume 11, Issue 6, June 2012.

16. J.-F. Daigle, F. Théberge, M. Henriksson, **T.-J. Wang**, S. Yuan, M. Châteauneuf, J. Dubois, M. Piché, S. L. Chin, "Remote THz generation from two-color filamentation: Long distance dependence," **Optics Express**, **20**, 6825-6834 (2012); **Virtual Journal of Laser**, Mar. 12 (2012).

15. Shuai Yuan, **Tie-Jun Wang**, O. Kosareva, N. Panov, V. A. Makarov, Heping Zeng, and See Leang Chin, "Measurement of birefringence inside a filament," **Physical Review A** 84, 013838 (2011); **Virtual Journal of Ultrafast Science**, Volume 10, Issue 8, August 2011.

14. **T.-J. Wang,*** J.-F. Daigle, S. Yuan, F. Théberge, M. Châteauneuf, J. Dubois, G. Roy, and S. L. Chin, "Remote generation of high energy terahertz pulses from two-color femtosecond laser filamentation in air," **Physical Review A 83**, 053801 (2011); **Virtual Journal of Laser**, May 2 (2011).

13. Olga Kosareva, Jean-Francois Daigle, Nikolay Panov, **Tiejun Wang**, Sima Hosseini, Shuai Yuan, Gilles Roy, Vladimir Makarov, and See Leang Chin, "Arrest of self-focusing collapse in femtosecond air filaments: higher-order Kerr or plasma defocusing?" **Optics Letters 36**, 1035 (2011); **Virtual Journal of Ultrafast Science**, Volume 10, Issue 5, May 2011.

12. **Tie-Jun Wang**,* Shuai Yuan, Zhen-Dong Sun, Claude Marceau, Yanping Chen, Francis Théberge, Marc Châteauneuf, Jacques Dubois, and See Leang Chin, "Molecular alignment control of terahertz emission from a two-color filament in air," **Laser Physics Letters, 8**, 295-300 (2011).

11. **Tie-Jun Wang,*** Shuai Yuan, Yanping Chen, Jean-François Daigle, Claude Marceau, Francis Théberge, Marc Châteauneuf, Jacques Dubois, and See Leang Chin, "Toward remote high energy terahertz generation," **Applied Physics Letters**, **97**, 111108 (2010); **Virtual Journal of Laser**, Sep. 15 (2010)；**Virtual Journal of Ultrafast Science**, Volume 9, Issue 10, October 2010.

10. Olga Kosareva, Nikolay Panov, Vladimir Makarov, Igor Perezhogin, Claude Marceau, Yanping Chen, Shuai Yuan, **Tie-Jun Wang**, Heping Zeng, Andrey Savel'ev, and See Leang Chin, "Polarization rotation due to femtosecond filamentation in an atomic gas," **Optics Letters, 35,** 2904 (2010); **Virtual Journal of Ultrafast Science**, Volume 9, Issue 12, December 2010.

9. J.-F. Daigle, A. Jaroń-Becker, S. Hosseini, **T.-J. Wang**, Y. Kamali, G. Roy, A. Becker, S. L. Chin, "Intensity clamping measurement of laser filaments in air at 400 nm and 800 nm," **Physical Review A, 82**, 023405 (2010); **Virtual Journal of Laser**, Aug. 04 (2010); **Virtual Journal of Ultrafast Science**, Volume 9, Issue 9, September 2010.

8. **Tie-Jun Wang,*** Claude Marceau, Yanping Chen, Shuai Yuan, Francis Théberge, Marc Châteauneuf, Jacques Dubois, and See Leang Chin, "THz emission from a dc-biased two-color femtosecond laser-induced filament in air," **Applied Physics Letters**, **96**, 211113 (2010); **Virtual Journal of Laser**, May 27 (2010); **Virtual Journal of Ultrafast Science**, Volume 9, Issue 6, June 2010.

7. **Tie-Jun Wang,*** Zsuzsanna Major, Izhar Ahmad, Sergei Trushin, Ferenc Krausz, Stefan Karsch, "Ultra-broadband near-Infrared pulse generation by noncollinear OPA with angular dispersion compensation," **Applied Physics B: Laser and Optics, 100**, 207-214 (2010); **Virtual Journal of Laser**, Nov. 2 (2009).

6. **Tie-Jun Wang,*** Yanping Chen, Claude Marceau, Francis Théberge, Marc Châteauneuf, Jacques Dubois, and See Leang Chin, "High energy terahertz emission from two-color laser-induced filamentation in air with pump pulse duration control," **Applied Physics Letters, 95**, 131108 (2009); **Virtual Journal of Laser**, Oct. 1 (2009); **Virtual Journal of Ultrafast Science**, Volume 8, Issue11, November 2009.

5. Yanping Chen, **Tie-Jun Wang**, Claude Marceau, Francis Théberge, Marc Châteauneuf, Jacques Dubois, Olga Kosareva, and See Leang Chin, "Characterization of terahertz emission from a dc-biased filament in air," **Applied Physics Letters, 95**, 101101 (2009); Top 20 most downloaded articles in September 2009.

4. **Tie-Jun Wang**, Zhi-Hui Kang, Hong-Zhi Zhang, Zhi-Shu Feng, Feng-Guang Wu, Hai-Yan Zang, Yun Jiang, Jin-Yue Gao, Yury Andreev, Grigory Lanskii, Victor Atuchin, Oleg Parasyuk, "Sellmeier equations for orange and green colored $HgGa_2S_4$ single crystals" **Applied Physics Letters**, **90**, 181913 (2007)**.**

3. Qiongyi He, **Tiejun Wang**, Jinhui Wu and Jinyue Gao, "Effects of resonant absorption and inhomogeneous broadening on reflection and absorption spectra of optical lattices in diamond NV centers", **Optics Express**, **14**(24), 11727-11735 (2006); **Virtual Journal of Ultrafast Science**, Volume 6, Issue 2, February, 2006.

2. Qiong-Yi He, Jin-Hui Wu, **Tie-Jun Wang**, and Jin-Yue Gao, "Dynamic control of the photonic stop bands formed by a standing wave in inhomogeneous broadening solids," **Physical Review A**. **73**, 053813 (2006); **Virtual Journal of Nanoscale Science & Technology** , Vol.13, Issue 21, May 29, 2006.

1. **Tie-Jun Wang**, Zhi-Hui Kang, Hong-Zhi Zhang, Qiong-Yi He, Yi Qu, Zhi-Shu Feng, Yun Jiang, Jin-Yue Gao, Yury M. Andreev, Gregory V. Lanskii, "Wide-tunable, high-energy $AgGaS_2$ optical parametric oscillator," **Optics Expres**s, **14**(26), 13001-13006 (2006).

- **Review papers**

2. **Tie-Jun Wang**,***** Shuai Yuan, Yanping Chen, and See Leang Chin, "Intense broadband THz generation from femtosecond laser filamentation," **Chinese Optics Letters**, **11**, 011401 (2013) (Invited review paper in **Special issue in celebration of 10th anniversary of Chinese Optics Letters**); **Virtual Journal of Laser**, Dec. 31 (2012).

1. S. L. Chin, **T. J. Wang**, C. Marceau, J. Wu, J. S. Liu, O. Kosareva, N. Panov, Y. P. Chen, J-F Daigle, S. Yuan, A. Azarm, W. W. Liu, T. Seideman, H. P. Zeng, M. Richardson, R. Li, Z. Z. Xu, "Advances in intense femtosecond laser filamentation in air," **Laser Physics** 22, 1 (2012); **Virtual Journal of Laser**, Sep. 05 (2011).

- **Book Chapters**

1. S. L. Chin, A. Azarm, H. L. Xu, **T.-J. Wang**, M. Sharifi, A. Talebpour, "Experiments in population trapping in atoms and molecules by an intense short laser pulse," in "Progress in Ultrafast Intense Laser Science VIII," Springer Series in Chemical Physics, Vol. 103, Yamanouchi Kaoru, Nisoli Mauro, and Hill III Wendell T. (Eds.), Springer 2012. Chapter 4, p. 79-95.