

● 期刊論文 **Journal papers**

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1. Y. T. Yu, P. H. Tuan, P. Y. Chiang, H. C. Liang, K. F. Huang, and Y. F. Chen, “Wave pattern and weak localization of chaotic versus scarred modes in stadium-shaped surface-emitting lasers,” Phys. Rev. E **84**, 056201 (2011). DOI: [10.1103/PhysRevE.84.056201](https://doi.org/10.1103/PhysRevE.84.056201)
2. Y. F. Chen, Y. T. Yu, P. Y. Chiang, P. H. Tuan, Y. J. Huang, H. C. Liang, and K. F. Huang, “Manifestation of quantum-billiard eigenvalue statistics from subthreshold emission of vertical-cavity surface-emitting lasers,” Phys. Rev. E **83**, 016208 (2011).

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3. P. H. Tuan, Y. T. Yu, P. Y. Chiang, H. C. Liang, K. F. Huang, and Y. F. Chen, “Level statistics and eigenfunctions of square torus billiards: Manifesting the transition from regular to chaotic behaviors,” Phys. Rev. E **85**, 026202 (2012). DOI: [10.1103/PhysRevE.85.026202](https://doi.org/10.1103/PhysRevE.85.026202)

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4. C. H. Tsou, T. W. Wu, J. C. Tung, H. C. Liang, P. H. Tuan, and Y. F. Chen, “Generation of pseudonondiffracting optical beams with superlattice structures”, Optics Express **21**, 23441 (2013).

DOI: [10.1364/OE.21.023441](https://doi.org/10.1364/OE.21.023441)

5. Y. C. Lin, P. H. Tuan, Y. T. Yu, H. C. Liang, K. W. Su, K. F. Huang, and Y. F. Chen, “Observation of disordered wave functions with conical second-harmonic generation and verification of transition from extended to prelocalized states in weak localization”, Phys. Rev. B **87**, 045117 (2013).

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6. C. Y. Cho, P. H. Tuan, Y. T. Yu, K. F. Huang and Y. F. Chen, “A cryogenically cooled Nd:YAG monolithic laser for efficient dual-wavelength operation at 1061 and 1064 nm”, Laser Phys. Lett. **10**, 045806 (2013).

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7. P. H. Tuan, C. P. Wen, Y. T. Yu, H. C. Liang, K. F. Huang, and Y. F. Chen, “Exploring the distinction between experimental resonant modes and theoretical eigenmodes: From vibrating plates to laser cavities”, Phys. Rev. E **89**, 022911 (2014). DOI: [10.1103/PhysRevE.89.022911](https://doi.org/10.1103/PhysRevE.89.022911)

8. Y. T. Yu, P. H. Tuan, K. W. Su, and Y. F. Chen, “Exploring the influence of boundary shapes on emission angular distributions and polarization states of broad-area vertical-cavity surface-emitting lasers”, Optics Express **22**, 026939 (2014).

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9. Y. T. Yu, P. H. Tuan, C. P. Wen, K. F. Huang, and Y. F. Chen, “Exploring lasing modes and polarization characteristics in broad-area square-shaped vertical-cavity surface emitting lasers with frequency detuning”, Laser Phys. Lett. **11**, 115001 (2014).

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10. P. H. Tuan, H. C. Liang, J. C. Tung, P. Y. Chiang, K. F. Huang, and Y. F. Chen, “Manifesting the evolution of eigenstates from quantum billiards to singular billiards in the strongly coupled limit with a truncated basis by using *RLC* networks,” Phys. Rev. E **92**, 062906 (2015). DOI: [10.1103/PhysRevE.92.062906](https://doi.org/10.1103/PhysRevE.92.062906)

11. P. H. Tuan, J. C. Tung, H. C. Liang, P. Y. Chiang, K. F. Huang, and Y. F. Chen, “Resolving the formation of modern Chladni figures,” *Euro. Phys. Lett.* **111**, 64004 (2015).

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12. P. H. Tuan, C. P. Wen, P. Y. Chiang, Y. T. Yu, H. C. Liang, K. F. Huang, and Y. F. Chen, “Exploring the resonant vibration of thin plates: Reconstruction of Chladni patterns and determination of resonant wave numbers”, *J. Acoust. Soc. Am.* **137**, 2113 (2015).

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13. C. P. Wen, P. H. Tuan, H. C. Liang, C. H. Tsou, K. W. Su, K. F. Huang, and Y. F. Chen, “High-peak-power optically-pumped AlGaInAs eye-safe laser with a silicon wafer as an output coupler: comparison between the stack cavity and the separate cavity,” *Optics Express* **23**, 30749 (2015).

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14. Y. T. Yu, P. H. Tuan, P. Y. Chiang, K. W. Su, K. F. Huang, and Y. F. Chen, “The Influences of Boundary Shapes on Polarization Characteristics and Lasing Modes in Broad-Area Vertical-Cavity Surface-Emitting Lasers With Cryogenic Detuning: Regular Versus Chaotic Cavities”, *IEEE J. Sel. Top. Quantum Electron.* **21**(6), 1700606 (2015).

DOI: [10.1109/JSTQE.2015.2414916](https://doi.org/10.1109/JSTQE.2015.2414916)

15. C. Y. Lee, C. C. Chang, P. H. Tuan, C. Y. Cho, K. F. Huang, and Y. F. Chen, “ ”, *Optics Lett.* **40**, 1996 (2015).

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16. C. Y. Cho, C. Y. Lee, C. C. Chang, P. H. Tuan, K. F. Huang, and Y. F. Chen, “24-W cryogenically cooled Nd:YAG monolithic 946-nm laser with a slope efficiency >70%”, *Optics Express* **23**, 10126 (2015).

DOI: [10.1364/OE.23.010126](https://doi.org/10.1364/OE.23.010126)

17. C. P. Wen, P. H. Tuan, H. C. Liang, K. F. Huang, and Y. F. Chen, “Compact High-Peak-Power End-Pumped AlGaInAs Eye-Safe Laser With a Heat-Spreader Diamond Coated as a Cavity Mirror”, *IEEE J. Sel. Top. Quantum Electron.* **21**(1), 14577359 (2015).

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18. C. Y. Lee, C. C. Chang, C. Y. Cho, P. H. Tuan, and Y. F. Chen, “Generation of Higher Order Vortex Beams From a YVO4/Nd:YVO4 Self-Raman Laser via Off-Axis Pumping With Mode Converter”, *IEEE J. Sel. Top. Quantum Electron.* **21**(1), 14391683 (2015).

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19. P. H. Tuan, C. C. Chiang, C. Y. Lee, C. Y. Cho, H. C. Liang, and Y. F. Chen, “Exploiting concave-convex linear resonators to design end-pumped solid-state lasers with flexible cavity lengths: Application for exploring the self-mode-locked operation,” *Optics Express* **24** (23), 26024-26034 (2016).

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20. J. C. Tung, P. H. Tuan, H. C. Liang, K. F. Huang, and Y. F. Chen, “Fractal frequency spectrum in laser resonators and three-dimensional geometric topology of optical coherent waves,” *Phys. Rev. A* **94**, 023811 (2016).

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21. Y. T. Yu, P. H. Tuan, K. C. Chang, Y. H. Hsieh, K. F. Huang, and Y. F. Chen, “Exploiting broad-area surface emitting lasers to manifest the path-length distributions of finite-potential quantum billiards,” *Optics Express* **24**, 82 (2016).

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22. J. C. Tung, H. C. Liang, P. H. Tuan, F. L. Chang, K. F. Huang, T. H. Lu, and Y. F. Chen, "Selective pumping and spatial hole burning for generation of photon wave packets with ray-wave duality in solid-state lasers," *Laser Phys. Lett.* **13**, 025001 (2016).

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23. P. H. Tuan, M. C. Tsai, and Y. F. Chen, "Exploiting birefringent thermal lensing effect to manipulate polarization states of an Nd:YVO₄ self-mode-locked laser," *Opt. Express* **25**(23), 29000-29009 (2017).

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24. C. C. Chang, Y. H. Hsieh, C. Y. Lee, C. L. Sung, J. C. Tung, P. H. Tuan, H. C. Liang, Y. F. Chen, "Generating high-peak-power structured lights in selectively pumped passively Q-switched lasers with astigmatic mode transformations," *Laser Phys.* **27**(12), 125805 (2017).

DOI: [10.1088/1555-6611/aa92e2](https://doi.org/10.1088/1555-6611/aa92e2)

25. Y. F. Chen, J. C. Tung, P. H. Tuan, and K. F. Huang, "Symmetry Breaking Induced Geometric Surfaces with Topological Curves in Quantum and Classical Dynamics of the SU(2) Coupled Oscillators," *Ann. Phys. (Berlin)* **529**, 1600253 (2017).

DOI: [10.1002/andp.201600253](https://doi.org/10.1002/andp.201600253)

26. Y. H. Hsieh, Y. T. Yu, P. H. Tuan, J. C. Tung, K. F. Huang, Y. F. Chen, "Extracting trajectory equations of classical periodic orbits from the quantum eigenmodes in two-dimensional integrable billiards," *Phys. Rev. E* **95**(2), 022214 (2017).

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27. P. H. Tuan, C. C. Chang, F. L. Chang, C. Y. Lee, C. L. Sung, C. Y. Cho, Y. F. Chen, K. W. Su, "Modelling end-pumped passively Q-switched Nd-doped crystal lasers: manifestation by a Nd:YVO₄/Cr⁴⁺:YAG system with a concave-convex resonator," *Optics Express* **25**(3), 1710-1722 (2017).

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29. P. H. Tuan, Y. H. Hsieh, Y. H. Lai, K. F. Huang, and Y. F. Chen, "Characterization and generation of high-power multi-axis vortex beams by using off-axis pumped degenerate cavities with external astigmatic mode converter," *Opt. Express* **26**(16), 20481-20491 (2018).

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31. P. H. Tuan, H. C. Liang, K. F. Huang, and Y. F. Chen, "Realizing high-pulse-energy large-angular-momentum beams by astigmatic transformation of geometric modes in an Nd:YAG/Cr⁴⁺:YAG laser," *IEEE J. Sel. Top. Quantum Electron.* **24**(5), 1600809 (2018).

DOI: [10.1109/JSTQE.2018.2798999](https://doi.org/10.1109/JSTQE.2018.2798999)

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32. P. H. Tuan, Y. T. Yu, K. F. Huang, and Y. F. Chen, “Exploring the formation of thermally detuned transverse patterns in a broad-area square VCSEL,” *Opt. Lett.* **44**(12), 3034-3037 (2019).

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● 研討會論文 **Conference papers**

1. Y. T. Yu, P. H. Tuan, K. W. Su, and Y. F. Chen, “Investigation on Polarization Features of Broad-Area Square-Shaped VCSELs with Different Frequency Detuning: High-Order Modes Assisted in Stable Polarization Emission”, Conference on Lasers and Electro-Optics/Pacific Rim. Optical Society of America, (2013).

DOI: [10.1109/CLEOPR.2013.6600429](https://doi.org/10.1109/CLEOPR.2013.6600429)

2. P. H. Tuan, C. Y. Cho, C. H. Wu, J. C. Tung, K. W. Su, and Y. F. Chen, “Exploring Air Breakdown Threshold and Temporal Dynamics by a Q-switched Mode-locked Nd: YAG Laser in a Statistical Approach,” Conference on Advanced Solid State Laser Optical Society of America, (2015).

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3. C. P. Wen, P. H. Tuan, C. Y. Cho, H. C. Liang, K. W. Su, K. F. Huang, and Y. F. Chen, “High-peak-power Optically-pumped AlGaInAs Eye-safe Laser with a Sandwiched Gain Chip Structure and a Silicon Wafer Output Coupler to Form a Compact Cavity,” Conference on Advanced Solid State Laser Optical Society of America, (2015).

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4. J. C. Tung, P. H. Tuan, H. C. Liang, K. W. Su, K. F. Huang, Y. F. Chen, “Total Self-Mode-Locking of Multi-Pass Geometric Modes Localized on Hyperbolic Caustics in Diode-Pumped Nd: YVO₄ Lasers,” Conference on Advanced Solid State Laser Optical Society of America, (2015).

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5. C. Y. Cho, T. L. Huang, P. H. Tuan, J. C. Tung, and Y. F. Chen, “Optimal Temperature for the Cryogenically Cooled 946-nm Nd: YAG Laser with Monolithic Resonator,” Conference on Advanced Solid State Laser Optical Society of America, (2015).

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6. J. C. Tung, P. H. Tuan, C. Y. Cho, H. C. Liang, K. W. Su, K. F. Huang, Y. F. Chen, “Exploring vortex structures of circularly geometric beams from off-axis pumped solid-state lasers with an external mode converter,” Conference on Applications of Lasers for Sensing and Free Space Communications, JTh2A. 14 (2016).

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7. P. H. Tuan, C. C. Chang, C. Y. Lee, C. Y. Cho, J. C. Tung, K. W. Su, K. F. Huang, Y. F. Chen, “Design model of thermally insensitive convex-concave cavities for high-power diode-end-pumped solid-state lasers,” Conference on Applications of Lasers for Sensing and Free Space Communications, JTh2A. 18 (2016).

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9. Y. H. Hsieh, P. H. Tuan, J. C. Tung, H. C. Liang, K. W. Su, and Y. F. Chen, “Analytical representation for structured light generated by astigmatic transformation of Hermite-Gaussian beams,” Optical Manipulation Conference, 10712, 107120Q (2018).

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