

IV. Publications

A. Journal papers:

1. Y. W. Lin, T. H. Chang, T. H. Her, and **H. Y. Yao***, “Thin-film dielectric characterization by bound state in the continuum in high contrast grating,” *Opt. Express* **32**, 36084 (2024). **IF : 3.833. (corresponding author).**
2. S. H. Tsai, **H. Y. Yao***, and T. H. Chang, “Exploring relaxation behaviors in Hydrogen-Bond networks within binary mixtures of propylene carbonate and primary alcohols through broadband dielectric spectroscopy and molecular dynamic simulation,” *J. Mol. Liq.* **405**, 125043 (2024). **IF : 6.633. (corresponding author).**
3. T. F. Yang, **H. Y. Yao***, S. H. Chen, and T. H. Chang, “Intrinsic Resonance in Gyrotron Using Non-resonant RF Structure,” *Phys. Plasma* **31**, 043101 (2024). **IF : 2.2. (corresponding author).**
4. T. F. Yang, **H. Y. Yao***, C. C. Chang, C. H. Du, F. Zhang, T. H. Chang, “TE-and TM-Mode Competition in Subterahertz Gyrotron Using Axis-Encircling Electron Beam,” *IEEE Trans. Electron Devices* **71**, 815-821 (2024). **IF : 3.221. (corresponding author).**
5. S. I. Ahmad, E. Sarpong, A. Dave, H. Y. Yao, J. M. Solomon, J. K. Jiang, C. W. Luo, W. H. Chang, and T. H. Her, “Dielectric breakdown and sub-wavelength patterning of monolayer hexagonal boron nitride using femtosecond pulses,” *2D Mater.* **10**, 045029 (2023). **IF : 6.861.**
6. **H. Y. Yao**, Y. C. Wang, F. HadavandMirzaeeand, T. H. Chang, and T. H. Her, “Mechanism and tuning sensitivity of symmetry-protected resonances in high-contrast gratings,” *Opt. Express* **31**, 20093 (2023). **IF : 3.833.**
7. **H. Y. Yao**, Y. C. Wang, and T. H. Chang, “Investigation of dielectric spectrums, relaxation processes, and intermolecular interactions of primary alcohols, carboxylic acids, and their binary mixtures,” *J. Mol. Liq.* **353**, 118755 (2022). **IF : 6.633.**
8. **H. Y. Yao**, C. H. Wei, and T. H. Chang, “Nonlinear and self-consistent single-mode formulation for TM-mode gyrotrons,” *Phys. Rev. E* **104**, 065205 (2021). **IF : 2.707.**
9. **H. Y. Yao**, Y. W. Lin, and T. H. Chang, “Dielectric properties of BaTiO₃-epoxy nanocomposites in the microwave regime,” *Polymers* **13**, 1391 (2021). **IF : 4.967.**
10. **H. Y. Yao** and T. H. Her, “Mechanism and sensitivity of Fano resonance tuning in high-contrast gratings” *Opt. Lett.* **46**, 721 (2020). **IF : 3.56.**
11. **H. Y. Yao** and T. H. Chang, “Time-domain analysis of superluminal effect for one-dimensional Fabry-Perot cavity,” *Chin. J. Phys.* **67**, 657 (2020). **IF : 3.957.**

12. **H. Y. Yao**, D. R. Hsiao, and T. H. Chang, "Fast, nondestructive, and broadband dielectric characterization for polymer sheets," *Polymers* **12**, 1891 (2020). **IF : 4.967.**
13. S. C. Su, **H. Y. Yao**, and T. H. Chang, "Characterization of ferrites using a fully loaded waveguide system," *J. Magn. Magn. Mater.* **505**, 166712 (2020). **IF : 3.097.**
14. **H. Y. Yao**, C. C. Chen, and T. H. Chang, "Starting behaviors of the TM-mode gyrotrons," *Phys. Plasma* **27**, 022113 (2020). **IF : 2.357.**
15. **H. Y. Yao**, W. C. Chang, L. W. Chang, and T. H. Chang, "Theoretical and experimental investigation of ferrite-loaded waveguide for ferrimagnetism characterization," *Prog. Electromagn. Res. C* **90**, 195-208 (2019). **IF : 1.68.**
16. M. E. Green, D. A. Bas, **H. Y. Yao**, J. J. Gengler, R. J. Headrick, T. C. Back, A. M. Urbas, M. Pasquali, J. Kono, and T. H. Her, "Bright and Ultrafast Photoelectron Emission from Aligned Single-Wall Carbon Nanotubes through Multiphoton Exciton Resonance," *Nano Lett.* **19**, 158-164 (2018). **IF : 11.238.**
17. **H. Y. Yao**, Z. Y. Chen, and T. H. Chang, "A design of broadband and low-loss multilayer antireflection coating in THz region," *Prog. Electromagn. Res. C* **88**, 171 (2018). **IF : 1.68.**
18. T. H. Chang, **H. Y. Yao**, B. Y. Su, W. C. Huang, and B. Y. Wei, "Nonlinear oscillations of TM-mode gyrotrons," *Phys. Plasma* **24**, 122109 (2017). **IF : 2.357.**
19. T. H. Chang, W. C. Huang, **H. Y. Yao**, C. L. Hung, W. C. Chen, and B. Y. Su, "Asymmetric linear efficiency and bunching mechanisms of TM modes for electron cyclotron maser," *Phys. Plasma* **24**, 023302 (2017). **IF : 2.357.**
20. **H. Y. Yao**, N. C. Chen, T. H. Chang, and H. G. Winful, "Tunable negative group delays in a birefringent waveguide with high fractional advancement induced by cross-interference effect," *IEEE Trans. Microw. Theory Techn.* **64**, 3121 (2016). **IF : 4.381.**
21. **H. Y. Yao**, J. Y. Jiang, Y. S. Cheng, Z. Y. Chen, T. H. Her, and T. H. Chang, "Modal analysis and efficient coupling of TE₀₁ mode in small-core THz Bragg fibers," *Opt. Express* **23**, 27266 (2015). **IF : 3.833.**
22. **H. Y. Yao**, N. C. Chen, T. H. Chang, and H. G. Winful, "Frequency-dependent cavity lifetime and apparent superluminality in Fabry-Perot-like interferometers," *Phys. Rev. A* **86**, 053832 (2012). **IF : 2.971.**
23. **H. Y. Yao** and T. H. Chang, "Experimental and theoretical studies of a broadband superluminality in Fabry-Perot interferometer," *Prog. Electromagn. Res.* **122**, 1 (2012). **IF : 4.831.**
24. **H. Y. Yao** and T. H. Chang, "Effect of high-order modes on tunneling characteristics," *Prog. Electromagn. Res.* **101**, 291 (2010). **IF : 4.831.**

25. S. D. Tsai, **H. Y. Yao***, and Tsun-Hsu Chang, “Exploring Relaxation Behaviors in Hydrogen-Bond Networks within Binary Mixtures of Propylene Carbonate and Primary Alcohols Through Broadband Dielectric Spectroscopy and Molecular Dynamic Simulation,” submitted to *Journal of Molecular dynamics* (Jan. 2024, corresponding author).

B. Conference papers (international):

1. T. F. Yang, **H. Y. Yao**, S. H. Chen, and T. H. Chang, “Mechanism of Forward Radiation in Gyrotron Oscillator with Regular Tube,” 6312928, IRMMW-THz 2024 (Keynote talk).
2. T. F. Yang, **H. Y. Yao**, C. C. Chang, C. H. Du, F. Zhang, and T. H. Chang, “TE and TM Mode Competition in Subterahertz Gyrotron Using Axis-encircling Electron Beam,” 320, ICOPS 2024 (Oral).
3. T. F. Yang, **H. Y. Yao**, C. C. Chang, C. H. Du, F. Zhang, and T. H. Chang, “TE and TM Mode Competition in Subterahertz Gyrotron Using Axis-encircling Electron Beam,” K4-OAS-002, TPS 2024 (Oral-AAPPS Award).
4. **H. Y. Yao**, T. H. Her, Y. C. Wang, F. Hadavandmirzaee, T. H. Chang, “Index-tuning analysis and innovative applications of bound states in the continuum in high-contrast dielectric gratings,” O1-OP-002, TPS 2024 (Oral).
5. T. F. Yang, **H. Y. Yao**, S. H. Chen, and T. H. Chang, “Intrinsic Resonance in Gyrotron Using Non-resonant RF Structure,” O3-PP-003, TPS 2024 (Oral).
6. Y. W. Lin, **H. Y. Yao**, and T. H. Chang, “Thin-Film Dielectric Characterization by Fano Resonance in High Contrast Grating,” O3-PP-004, TPS 2024 (Oral).
7. S. D. Tsai, **H. Y. Yao**, and T. H. Chang, “Broadband and Molecular Dynamics Analysis of Propylene Carbonate and its Binary Mixtures,” P2-PP-011, TPS 2024 (Poster).
8. J. Nelson, T. F. Yang, **H. Y. Yao**, and T. H. Chang, “Optimizing the Beam Efficiency of the TM₁₁-Mode Gyrotron through Geometrical Tuning,” P2-PP-016, TPS 2024 (Poster).
9. C. C. Chang, T. F. Yang, Z. C. Liou, **H. Y. Yao**, and T. H. Chang, “Investigation of structural effect on reflective-type gyrotron,” P2-PP-019, TPS 2024 (Poster).
10. **H. Y. Yao**, Y. C. Wang, F. HadavandMirzaeeand, T. H. Chang, and T. H. Her, “Refractive Index Tuning Sensitivity of Symmetry-protected Resonances in High-contrast gratings,” 2023-FRI-S0302-O006, OPTIC 2023 (Oral).
11. T. H. Her and **H. Y. Yao**, “Novel applications of tuning bound states in the continuum in high-contrast gratings,” WD1.1, IEEE RAPID 2023 (Invited talk).
12. **H. Y. Yao** and T. H. Chang, “Linear and Nonlinear Behaviors of TM-mode Gyrotrons,” O2-PP-001, TPS 2023 (Invited talk).
13. J. Nelson, **H. Y. Yao**, and T. H. Chang, “Optimization of Nonlinear Self-Consistent TM-mode Gyrotrons,” P2-PP-008, TPS 2023 (Poster).
14. Y. W. Lin, **H. Y. Yao**, and T. H. Chang, “Thin-Film Dielectric Characterization by Fano Resonance in High Contrast Grating,” P2-PP-011, TPS 2023 (Poster).

15. L. C. Kuo, **H. Y. Yao**, and T. H. Chang, “Broadband characterization of materials’ electromagnetic properties at different phases by stripline system,” P2-PP-012, TPS 2023 (Poster).
16. **H. Y. Yao**, C. H. Wei, and T. H. Chang, “Nonlinear and Self-Consistent Formulation for TM-mode Gyrotrons,” O2-PP-003, TPS 2022 (Oral).
17. Y. C. Wang, **H. Y. Yao**, and T. H. Chang, “Broadband permittivity characterization of alcohol-carboxylic acids binary mixtures by coaxial-circular waveguide junction,” PP-PP-015, TPS 2022 (Poster).
18. Y. W. Lin, **H. Y. Yao**, and T. H. Chang, “High-Q Fano resonance in high-contrast grating for thin-film dielectric characterization in the sub-THz regime,” PP-PP-016, TPS 2022 (Poster).
19. C. H. Wei, **H. Y. Yao**, and T. H. Chang, “Optimization of TM_{11} -mode gyrotron backward-wave oscillator by two-step tapered structure,” PP-PP-017, TPS 2022 (Poster).
20. **H. Y. Yao**, C. H. Wei, and T. H. Chang, “Nonlinear and Self-Consistent Formulation for TM-mode Gyrotrons,” 8O-B-06, ICOPS 2021 (Oral).
21. T. H. Her, J. M. Solomon, S. H. Chen, **H. Y. Yao**, L. S. Lu, S. Ahmad, W. C. Chiu, C. H. Chang, S. C. Lin, J. Obeid, W. H. Chang, and C. W. Luo, “Optical breakdown of monolayer transition metal dichalcogenides induced by femtosecond laser,” WC3.3, IEEE RAPID 2021 (Invited talk).
22. J. M. Solomon, **H. Y. Yao**, L. S. Lu, W. H. Chang, T. H. Her, and C. W. Luo, “Ultrafast ablation and the role of avalanche ionization in transition metal dichalcogenides,” SW3H.1, CLEO 2021 (Invited talk).
23. **H. Y. Yao** and T. H. Her, “Mechanism and sensitivity of Fano resonance tuning in high-contrast gratings,” JW1A, CLEO 2021 (Poster).
24. T. H. Her, J. M. Solomon, S. H. Chen, **H. Y. Yao**, L. S. Lu, J. Obeid, Y. C. Wu, W. H. Chang, and C. W. Luo, “Femtosecond laser-induced breakdown of monolayer two-dimensional materials,” SW3G.1, CLEO 2020 (Invited talk).
25. **H. Y. Yao**, “Start-oscillation Behaviors of the TM mode gyrotrons”, TA2-S2-006, ICOPS 2020 (Oral).
26. D. R. Hsiao, **H. Y. Yao**, and T. H. Chang, “Development of a non-destructive circular waveguide system for broadband dielectric characterization of sheet materials,” P2-PA-033, TPS 2020 (Poster).
27. C. Chen, **H. Y. Yao**, and T. H. Chang, “Two-section waveguide system for liquid characterization,” P2-PA-009, TPS 2020 (Poster).

28. **H. Y. Yao**, C. C. Chen, and T. H. Chang, "Starting behaviors of the TM-mode gyrotrons," P2-PA-031, TPS 2020 (Poster).
29. S. C. Su, **H. Y. Yao**, T. H. Chang, "Characterization of ferrites using fully loaded waveguide system," O5-PA, TPS 2020 (Oral).
30. **H. Y. Yao**, C. Chen, T. H. Chang, "Microwave liquid characterization systems for the investigation of alcohol molecular dynamics," O5-PA, TPS 2020 (Oral).
31. S. C. Su, **H. Y. Yao** and T. H. Chang, "Characterization of ferrites using fully loaded waveguide system," 2019 台灣磁性技術協會年會暨第 31 屆磁學與磁性技術研討會 (Oral).
32. T. H. Chang, H. W. Chao, **H. Y. Yao**, and S. C. Su, "Characterization and Applications of Ferrite Materials," 2019 台灣磁性技術協會年會暨第 31 屆磁學與磁性技術研討會 (Oral).
33. C. Chen, S. C. Su, **H. Y. Yao**, and T. H. Chang, "Three-section rectangular waveguide system for liquid characterization," P2-PA-009, TPS 2019 (Poster).
34. **H. Y. Yao**, Z. Y. Chen, T. H. Chang, "A Design of broadband THz antireflection coating," O4-OE-03, TPS 2019 (Oral).
35. J. M. Solomon, **H. Y. Yao**, Li. S. Lu , W. H. Chang, and T. H. Her, "Femtosecond-laser ablation of monolayer molybdenum disulfide (MoS_2) on sapphire," SM3H.4, CLEO 2019.
36. D. A. Bas, M. E. Green, **H. Y. Yao**, J. J. Gengler, R. J. Headrick, T. C. Back, A. M. Urbas, M. Pasquali, J. Kono, and T. H. Her, "Bright and Ultrafast Photoelectron Emission from Aligned Single-Wall Carbon Nanotubes through Multiphoton Exciton Resonance," STh4H.5, CLEO 2019.
37. **H. Y. Yao**, J. Y. Jiang, Y. S. Cheng, Z. Y. Chen, T. H. Her, and T. H. Chang, "Efficient coupling of TE_{01} Mode in small-core THz Bragg fiber," THz Workshop 2015 (Oral).
38. **H. Y. Yao**, Z. Y. Chen and T. H. Chang, "Broadband Multilayer Antireflection Coating in THz Region," IRMMW-THz 2015 (Poster).
39. **H. Y. Yao**, J. Y. Jiang, Y. S. Cheng, Z. Y. Chen, T. H. Her, and T. H. Chang, "Design and efficient coupling of TE_{01} mode in small-core THz Bragg fibers" IRMMW-THz 2015 (Poster).
40. **H. Y. Yao**, N. C. Chen, T. H. Chang, and H. G. Winful, "Tunable and broadband negative group delays in a birefringent waveguide," IRMMW-THz 2014 (Poster).
41. **H. Y. Yao**, J. Y. Jiang, Y. S. Cheng, Z. Y. Chen, T. H. Her, and T. H. Chang, "Design and efficient coupling of TE_{01} mode in small-core THz Bragg fibers," IRMMW-THz 2014 (Poster).

42. **H. Y. Yao**, N. C. Chen, T. H. Chang, and H. G. Winful, “Frequency-dependent cavity lifetime and apparent superluminality in Fabry-Pérot-like Interferometers,” APS 2013 (Poster).
43. **H. Y. Yao** and T. H. Chang, “Effect of high-order modes on tunneling characteristics,” PIERS 2011 (Poster).