

Dr. Yi-Ren Wang is a professor of Department of Aerospace Engineering at the Tamkang University, Taiwan. His specialties include Vibration energy harvesters, Wind turbine, Nonlinear Vibration, Aeroelasticity and Structural Dynamics. He received his Ph.D. in Aerospace Engineering from the Georgia Institute of Technology, U. S. A. He was the chairman of Department of Aerospace Engineering at Tamkang University. He was awarded the best paper of the year 2013 of *JoAAA*, *ICAYS-2017* and *ICAYS-2019* conferences and the distinguished oral presentation award of 2021 *ISME-ICMAEE* conference. He also received the golden prize in the 2022 Green idea invention and design fair (international competition). He was invited to participate in the *Future Science and Technology Exhibition 2021*. He was also awarded the distinguished teacher of the year 2016 of Tamkang University. He is an experienced international Journal reviewer and has also published more than 100 conferences and journal papers. Dr. Wang has served on the AASRC academic committee, and has been the Associate Editor for the *Journal of Applied Science and Engineering (JASE)*. He is a post-reviewer of the ministry of science and technology, Taiwan. In addition, he also served as councilor in both Association of Helicopter Development and Aeronautical and Astronautical Society, Taiwan, R.O.C.

### Refereed journal papers (2011~2021)

1. Yi-Ren Wang, Chien-Chun Hung, and Hsin Huang, "Vibration reduction of continuous moving loads on a nonlinear simple beam resting on an elastic foundation," *Journal of Applied Engineering Science*, Vol.20, No.1, article 903, pp53~62, 2022.
2. Yi-Ren Wang, and Ming-Ching Chu, "Analysis of double elastic steel wind driven magneto-electric vibration energy harvesting system," *Sensors*, Vol. 21, No.21, Article number 07364, 26 pages, 2021.
3. Yi-Ren Wang, and Yi-Jyun Wang, "Flutter speed prediction by using deep learning," *Advances in Mechanical Engineering*, Vol.13, No.11, 15 pages, 2021.
4. Yi-Ren Wang, Chien-Chun Hung, and Jung-Ting Tseng, "Transverse vibration energy harvesting of double elastic steel," *International Journal of Structural Stability and Dynamics*, Vol. 21, No.8, Article number 2150113, 30 pages, 2021.
5. Yi-Ren Wang, Yun-Shuo Chang, and Nguyen Cong Ha, "Vibration reduction and stability analysis of damping rings on nonlinear free-free beam," *Advances in Mechanical Engineering*, Vol.12, No.12, 2020, pp.1-21.
6. Yi-Ren Wang, and Yun-Shuo Chang, "Study of primary and internal resonance on 3D free-free double-section beam," *Advances in Technology and Innovation*, Vol.5, No.4, 2020, pp.270-291.
7. Yi-Ren Wang, and Y. H. Wei , "Internal resonance analysis of a fluid-conveying tube resting on a nonlinear elastic foundation," *Eur. Phys. J. Plus*, Vol. 135, Article number 364, 2020.
8. Yi-Ren Wang, Ming-Syun Wong and Bo-Yan Chen, "Analytical and experimental studies of double elastic steel sheet (DESS) vibration energy harvester system," *Energies*, Vol. 13, Article number: 1793, 2020. MOST 107-2218-E-006-044
9. Yi-Ren Wang, and Zi-Wei Hsu, "Effects of nano-particle dampers on multi-walled carbon nanotubes with internal resonance," *Journal of Applied Science and Engineering*, Vol. 22, No.1, 2019, pp.103-117.
10. Yi-Ren Wang, and Wan-Chi Hsiao, "Vibration Reduction of Damping Rings on 3D Nonlinear Multi-

- loaded Slender Beams," *Journal of Chinese Society of Mechanical Engineers*, Vol. 40, No.4, 2019, pp. 327-339.
11. Yi-Ren Wang, C.K. Feng and S.Y. Chen, "Damping effects of linear and nonlinear tuned mass dampers on nonlinear hinged-hinged beam," *Journal of Sound and Vibration*, Vol. 430, 2018, pp. 150-173.
  12. Yi-Ren Wang, Chi Tang and Chien-Chih Chiu, "The Effects of Wake Dynamics and Trailing Edge Flap on Wind Turbine Blade," *Journal of Applied Science and Engineering*, Vol. 21, No. 1, 2018, pp.105-115.
  13. Yi-Ren Wang, and Hsueh-Ghi Lu, "Damping performance of dynamic vibration absorber in nonlinear simple beam with 1:3 internal resonance," *International Journal of Acoustics and Vibration*, Vol. 22, No.2, 2017, pp.167-185.
  14. Yi-Ren Wang and Li-Ping Wu, "Effects of Tuned Mass Damper on Fixed-Fixed 3D Nonlinear String Resting on Nonlinear Elastic Foundation," *International Journal of Structural Stability and Dynamics*, Vol.17, No.4, 2017, Article ID 1750047 (33 pages).
  15. Yi-Ren Wang, and Shu-Chien Tu, "Influence of tuned mass damper on fixed-free 3D nonlinear beam embedded in nonlinear elastic foundation," *Meccanica*, Volume 51, Issue 10, 2016, pp 2377-2416.
  16. Yi-Ren Wang, and Ting-Hung Kuo, "Effects of a Dynamic Vibration Absorber on Nonlinear Hinged-free Beam," *ASCE Journal of Engineering Mechanics*, Vol. 142, No 4, Article ID 04016003, 25 pages, 2016.
  17. Yi-Ren Wang, and Ting-Yu Lin, "Vibration reduction of a double-layer system sandwiched with elastic medium," *International Journal of Structural Stability and Dynamics (IJSSD)*, Vol.16, No.10, 1550065 (14pages), 2016.
  18. Yi-Ren Wang, and Tzu-Wen Liang, "Application of lumped-mass vibration absorber on the vibration reduction of a nonlinear beam-spring-mass system with internal resonances," *Journal of Sound and Vibration*, Vol. 350, 2015, pp. 140-170.
  19. Yi-Ren Wang, and Ko-En Hung, "Damping effect of pendulum tuned mass damper on vibration of two-dimensional rigid body," *International Journal of Structural Stability and Dynamics (IJSSD)*, Vol.15, No.2, 2015, DOI: 10.1142/S0219455414500412, Article ID 1450041, 37 pages.
  20. Yi-Ren Wang, and Chi-Wei Fang, "Study on vibration in elastic beam with nonlinear supports at both ends," *Journal of Applied Mechanics and Technical Physics*, Vol. 56, No.2, 2015, pp. 337-346.
  21. Yi-Ren Wang, and C.-Y. Lo, "Design of hybrid dynamic balancer and vibration absorber," *Shock and Vibration*, Vol. 2014, DOI:10.1155/2014/397584, Article ID 397584, 18 pages.
  22. Yi-Ren Wang, and Chia-Man Chang, "Elastic beam with nonlinear suspension and a dynamic vibration absorber at the free end," *Transactions of the Canadian Society for Mechanical Engineering (TCSME)*, Vol. 38, No. 1, 2014, pp.107-137.
  23. Yi-Ren Wang, and Han-Shiang Lin, "Stability analysis and vibration reduction for a two-dimensional nonlinear system," *International Journal of Structural Stability and Dynamics (IJSSD)*, Vol.13, No.5, 2013, DOI: 10.1142/S0219455413500314, Article ID 1350031, 30 pages.
  24. Yi-Ren Wang, and Shu-Wei Chen, "Study of the Positions of Multiple Dampers in a Dual-Plate Mechanism for Vibration Reduction," *Journal of Aeronautics, Astronautics and Aviation*, Series A, Vol.45, No.2, 2013, pp.121-134.
  25. Yi-Ren Wang, and Yin-Shing Chang, "The Effects of An On-Blade Trailing-Edge-Flap on Rotor

Dynamics in Hover,” *Journal of Aeronautics, Astronautics and Aviation*, Series A, Vol.43, No.4, 2011, pp.241-250.

### Conference papers (selected, 2017~2021)

1. Yi-Ren Wang, Chin-Han Cheng and Pin-Tung Chen, “Analysis of energy harvester system with piezo-patch in magnetic field”, 2021 International Conference on Mechatronic, Automobile, and Environmental Engineering, 22-24 October, 2021, Hualien, Taiwan.
2. Yi-Ren Wang and Yun-Shuo Chang, "Internal Resonance Analysis of 3D Free-Free Double-Section Beam," *International Conference on Advanced Technology Innovation 2020*, Okinawa, Japan, Nov. 28-Dec. 01, 2020.
3. Yun-Shuo Chang and Yi-Ren Wang, "Aeroelastic analysis of rocket structural vibrations," *The 4<sup>th</sup> International Conference in Aerospace for Young Scientists (2019)*, Beihang University, Beijing, P.R.China, Oct. 12-13, 2019. **Best paper award**. MOST 107-2218-E-006-044
4. Yi-Ren Wang, " Vibration reduction for nonlinear beam systems – internal resonance," *The 4<sup>th</sup> International Conference in Aerospace for Young Scientists (2019)*, Beihang University, Beijing, P.R.China, Oct. 12-13, 2019. **Invited Speaker**.
5. Y. A. Wan, Y. R. Wang and Y. T. Liu, “Axial controlled nonlinear simple beam vibration energy harvester system,” The 9<sup>th</sup> International Conference & Workshop, REMOO-Energy reliability, 16–18 April, 2019, Hong Kong. MOST 107-2218-E-006-044.
6. Y.R Wang, B.Y. Chen, and M.S. Wong, “Effects of long elastic steel sheet vibration energy harvester,” 2018 AASRC Conference, NCKU, Tainan, December 8, 2018.
7. J. T. Tseng, Y. R. Wang, “Effects of double-steel-sheet vibration energy harvester system,” 2018 AASRC Conference, NCKU, Tainan, December 8, 2018.
8. Y.R Wang, C.K. Feng, Y.H. Wei and S.Y. Chen, “Effects of tuned mass dampers (TMDs) on nonlinear beam systems - case studies,” *The Taiwan-Japan Workshop on Mechanical and Aerospace Engineering 2018*, Oct. 5-7, 2018, Hsinchu, Taiwan.
9. Y.H. Wei and Y.R. Wang, "Flow-induced vibration of a fluid-conveying tube resting on nonlinear elastic foundation," *The 3<sup>rd</sup> International Conference in Aerospace for Young Scientists (2018)*, Beihang University, Beijing, P.R.China, Sep. 15-16, 2018.
10. M.S. Wong, Y.R. Wang, and J.T. Tseng, " Application of vibration energy harvester on the double-long-slender-membrane system," *The 3<sup>rd</sup> International Conference in Aerospace for Young Scientists (2018)*, Beihang University, Beijing, P.R.China, Sep. 15-16, 2018. **Best paper award**.
11. Y.A. Wan and Y.R. Wang, "Vibration control of axial actuator on the transverse vibration stability of nonlinear hinged-hinged beam," *The 3<sup>rd</sup> International Conference in Aerospace for Young Scientists (2018)*, Beihang University, Beijing, P.R.China, Sep. 15-16, 2018. **Best paper award**.
12. Yi-Ren Wang, Bo-Ruei Lai, and Shin-Ting Huang, "Nonlinear effects on moving string rested on nonlinear elastic foundation," *2017 International Conference in Aerospace for Young Scientists*, Beihang University, Beijing, P.R.China, Sep. 07-08, 2017. **Best paper award**.

13. Yi-Ren Wang , Chi Tang, and Chien-Chih Chiu, "Application of Finite State Wake Dynamics on Wind Turbine Blade," *2017 International Conference in Aerospace for Young Scientists*, Beihang University, Beijing, P.R.China, Sep. 07-08, 2017.

**Projects (last 5 years 2017~2021)**

Project title	Grant or commission	Start and end date	Progress of the project	Position held in the project	Funding (NTD)
Analysis of energy harvesting for Magneto-electric and fluid structure coupling parametric excitation system (111-2221-E-032-017-)	Ministry of Science and Technology (Taiwan)	2022/08/01~2023/07/31	in progress	principal investigator	893,000
Development of small sounding rocket (A) ( NSPO-P-111021)	National Space organization	2022/01/12~2025/01/11	in progress	principal investigator	8,991,000
Analytic and experimental study of wind driven magnetic piezoelectric vibration energy harvesting system (110-2221-E-032-026-)	Ministry of Science and Technology (Taiwan)	2021/08/01~2022/07/31	closed	principal investigator	996,000
Verification of unmanned helicopter main rotor frequency and dynamic response (110-2622-E-032-001-)	Ministry of Science and Technology (Taiwan)	2021/01/01~2021/12/31	closed	principal investigator	449,000
Industry-University Cooperation Program - Verification of unmanned helicopter main rotor frequency and dynamic response	Sovereign Technology CO.	2021/01/01~2021/12/31	closed	principal investigator	202,680
Effects of fixed-fixed double-steel-sheet vibration energy harvesting system (109-2221-E-032-011-)	Ministry of Science and Technology (Taiwan)	2020/08/01~2021/07/31	closed	principal investigator	866,000
Afterburner hybrid sounding rocket test and verification platform rocket development (3/3) (109-2224-E-006- 004-)	Ministry of Science and Technology (Taiwan)	2020/08/01~2022/07/31	closed	co- principal investigator	21,400,000
Afterburner hybrid sounding rocket test and verification platform rocket development (2/3)	Ministry of Science and Technology (Taiwan)	2019/08/01~2021/07/30	closed	co- principal investigator	21,349,000

(108-2218-E-006- 021-)					
Remote control helicopter rotor blade design principles and experimental verification (107-2622-E-032-008-CC3)	Ministry of Science and Technology (Taiwan)	2018/11/01~2019/10/31	closed	principal investigator	700,000
Industry-University Cooperation Program – Remote control helicopter rotor blade design principles and experimental verification	Sovereign Technology CO.	2018/11/01~2019/10/31	closed	principal investigator	297,320
Afterburner hybrid sounding rocket test and verification platform rocket development (1/3) (107-2218-E-006- 044-)	Ministry of Science and Technology (Taiwan)	2018/08/01~2019/10/31	closed	co- principal investigator	21,400,000
Vibration and stability analysis of the nonlinear vibration absorber (nonlinear energy sink) on a nonlinear beam (106-2221-E-032-037-)	Ministry of Science and Technology (Taiwan)	2017/08/01~2018/07/31	closed	principal investigator	548,000