國立屏東科技大學環境工程與科學系

空氣污染與再生能源研究室(EP 102)

主持老師: 蔡仁雄 (Jen-Hsiung Tsai) 助理教授

學歷

國立屏東科技大學環境工程與科學系博士

經歷

國立屏東科技大學環境工程與科學系助理教授

專長

氣膠採樣分析、生質燃料、燃燒氣膠、空氣毒物

近年重要研究成果

- Wen-Tien Tsai*, Li-An Kuo, Chi-Hung Tsai, Hsiang-Lan Huang, Ru-Yuan Yang, <u>Jen-Hsiung Tsai</u>, "Production of Porous Biochar from Cow Dung Using Microwave Process", *Materials*, Vol. 16, Iss. 24, 7667, December 2023.
- Li-An Kuo, Wen-Tien Tsai*, Ru-Yuan Yang, <u>Jen-Hsiung Tsai</u>, "Production of High-Porosity Biochar from Rice Husk by the Microwave Pyrolysis Process", Processes, Vol. 11, Iss. 11, 3119, November 2023.
- Chih-Chung Lin, Jen-Hsiung Tsai, Yi-Chin Hsieh, Shui-Jen Chen*, "Beehive Fireworks Festival Effect on the Nearby Atmospheric PM_{2.5} Level", *Aerosol and Air Quality Research*, Vol. 23, Iss. 4, 220389, April 2023.
- <u>Jen-Hsiung Tsai</u>, Shui-Jen Chen*, Sheng-Lun Lin, Zheng-You Xu, Kuo-Lin Huang, Chih-Chung Lin, "Chemical characterization of water-soluble ions and metals in particulate matter generated by a portable two-stroke gasoline engine", *Aerosol and Air Quality Research*, Vol. 21, Iss. 3, 200632, March 2021.
- Jen-Hsiung Tsai, Yue-Rou Chen, Shui-Jen Chen*, Sheng-Lun Lin, Kuo-Lin Huang, Chih-Chung Lin, Juei-Yu Chiu, "Characteristics of emissions from a portable two-stroke gasoline engine", Aerosol and Air Quality Research, Vol. 20, Iss. 3, pp. 630–642, March 2020.
- Kuo-Lin Huang*, Chou-Ching Liu, Chia-Wei Lee, Chen-Yao Ma, Ting-Chun Lin, <u>Jen-Hsiung Tsai</u>, Shui-Jen Chen, "Release reductions of gaseous ammonia and nitrogen oxides from electrochemical treatment of swine wastewater", *Aerosol and Air Quality Research*, Vol.19, No.11, pp. 2490–2501, November 2019.
- <u>Jen-Hsiung Tsai</u>, Shui-Jen Chen*, Sheng-Lun Lin, Kuo-Lin Huang, Cheng-Kai Hsueh, Chih-Chung Lin, Po-Min Li, "Emissions of PM_{2.5}-bound polycyclic aromatic hydrocarbons and metals from a diesel generator fueled with biodiesel converted from used cooking oil", *Aerosol and Air Quality Research*, Vol.19, No.7, pp. 1555–1565, June 2019.
- <u>Jen-Hsiung Tsai</u>, Shui-Jen Chen*, Po-Min Li, Guo-Ping Chang-Chien, Kuo-Lin Huang, Cheng-Hung Tsai, Chi-Ying Hsieh, Chih-Chung Lin, "Characteristics of PM_{2.5}-bound PCDD/Fs, PCBs, PBDD/Fs and PBDEs from a diesel generator using waste cooking oil-based biodiesel blends", *Aerosol and Air Quality Research*, Vol.18, No.10, pp. 2583-2590, October 2018.
- Jen-Hsiung Tsai, Sheng-Lun Lin, Shui-Jen Chen*, Ciao-Jhen Guo, Kuo-Lin Huang, Jia-Twu Lee, Kuei-Jyum C. Yeh, Juei-Yu Chiu, Chih-Chung Lin, "Emission characteristics of particulate matter and particle-bound metals from a diesel engine generator fueled with waste cooking oil-based biodiesel blended with n-butanol and acetone", Aerosol and Air Quality Research, Vol.18, No.5, pp. 1246–1254, May 2018.
- Kuo-Lin Huang, Tsung-Hsuan Tsai, Shui-Jen Chen, How-Ran Chao, Yi-Ming Kuo, <u>Jen-Hsiung Tsai</u>, "Gasand water-phase PAHs emitted from a single hydrogen-oxygen PEM fuel cell", *Aerosol and Air Quality Research*, Vol.18, No.2, pp. 433–443, February 2018.
- <u>Jen-Hsiung Tsai</u>, Sheng-Lun Lin, Shui-Jen Chen*, Guo-Ping Chang-Chien, Bo-Cheng Jheng, Kuo-Lin Huang, Chih-Chung Lin, Juei-Yu Chiu, "Persistent organic pollutant reductions from a diesel engine generator fueled with waste cooking oil-based biodiesel blended with butanol and acetone", *Aerosol and Air Quality Research*, Vol.17, No.8, pp. 2041–2050, August 2017.
- Shui-Jen Chen, <u>Jen-Hsiung Tsai*</u>, Guo-Ping Chang-Chien, Kuo-Lin Huang, Lin-Chi Wang*, Wen-Yinn Lin, Chih-Chung Lin, C. Kuei-Jyum Yeh, "Emission factors and congener-specific characterization of PCDD/Fs, PCBs, PBDD/Fs and PBDEs from an off-road diesel engine using waste cooking oil-based biodiesel blends", *Journal of Hazardous Materials*, Vol.339, pp. 274–280, October 2017.
- Sheng-Lun Lin, <u>Jen-Hsiung Tsai</u>, Shui-Jen Chen*, Kuo-Lin Huang, Chih-Chung Lin, Ho-Tsang Huang, Yi-Chin Hsieh, Chuen-Huey Chiu, "Emissions of polycyclic aromatic hydrocarbons and particle-bound metals from a diesel engine generator fueled with waste cooking oil-based biodiesel blends", *Aerosol and Air Quality Research*, Vol.17, No.6, pp. 1579–1589, June 2017.
- Chih-Chung Lin, <u>Jen-Hsiung Tsai</u>, Kuo-Lin Huang, C. Kuei-Jyum Yeh, Hsiu-Lin Chen*, Shui-Jen Chen*, Jia-Twu Lee, Yi-Chin Hsieh, "Characteristics of respirable particulate metals emitted by a beehive firework display in YanShuei area of southern Taiwan", *Aerosol and Air Quality Research*, Vol.16, No.9, pp. 2227–2236, September 2016.
- Kuo-Lin Huang, Ming-Sheng Wu, **Jen-Hsiung Tsai**, Ding-Yan Lin, Shui-Jen Chen, Wen-Jhy Lee, "Effect of operating conditions on PAHs emission from a single H₂-O₂ PEM fuel cell," **Aerosol and Air Quality Research**, Vol.16, No.9, pp. 2186–2197, September 2016.
- Jen-Hsiung Tsai, Shui-Jen Chen*, Kuo-Lin Huang, Guo-Ping Chang-Chien, Wen-Yinn Lin, Chien-Wei Feng, Jin-Yuan Syu, Ho-Tsang Huang, "Characteristics of persistent organic pollutant emissions from a dieselengine generator fueled using blends of waste cooking oil-based biodiesel and fossil diesel.", Aerosol and Air Quality Research, Vol.16, No.8, pp. 2048–2058, August 2016.



實驗室採樣分析設備



高流量空氣採樣器



引擎尾氣污染物採樣設備

進行中研究

農用汽油引擎使用生質醇燃料時尾氣中 $PM_{2.5}$ 上持久性自由基(PFRs)之排放特徵及其減碳成效評估(NSTC 112-2621-M-020-001-MY2)