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Professor

B.S. in Chemical Engineering  
National Taiwan University, 1995  
Ph.D. in Chemical Engineering  
University of Birmingham (UK), 2001

**Research and Professional Interests**  
Particle Technology  
Fluidization Engineering  
Multiphase and Granular Flow Simulations

### **Journal Papers**

1. Fukasawa, T., Toda, H., Huang, S.-Y., Hiraiwa, R., Huang, A.N., Kuo, H.P., Fukui, K., "Component Separation in a Vibrating Fluidized Bed Based on Differences in Agglomeration Properties of Particles." *Journal of Chemical Engineering of Japan*, 2018. **51**(7): p. 576-583.
2. Hsu, W.Y., A.N. Huang, and **H.P. Kuo\***, "Analysis of Interparticle Forces and Particle-Wall Interactions by Powder Bed Pressure Drops at Incipient Fluidization." *Powder Technology*, 2018. **325**: p. 64-68.
3. Huang, A. N., Hsu, C. P., Hou, B. R., **Kuo, H.P.\***, "Production and Separation of Rice Husk Pyrolysis Bio-oils from a Fractional Distillation Column Connected Fluidized Bed Reactor." *Powder Technology*, 2018. **323**: p. 588-593.
4. Huang, A. N., Ito, K.; Fukasawa, T., Fukui, K., **Kuo, H.P.\***, "Effects of Particle Mass Loading on the Hydrodynamics and Separation Efficiency of a Cyclone Separator." *Journal of the Taiwan Institute of Chemical Engineers*, 2018. **90**: p. 61-67.
5. Huang, A.N., Ito, K., Fukasawa, T., Yoshida, H., **Kuo, H.P.\***, Fukui, K., "Classification Performance Analysis of a Novel Cyclone with a Slit on the Conical Part by CFD Simulation." *Separation and Purification Technology*, 2018. **190**: p. 25-32.
6. Huang, A.N. and **Kuo, H.P.\***, "CFD Simulation of Particle Segregation in a Rotating Drum. Part II: Effects of Specularity Coefficient." *Advanced Powder Technology*, 2018. **29**(12): p. 3368-3374.
7. **Kuo, H.P.\***, Yang, Y.N., and Huang, A.N., "A Kinetic Study of CFB Boiler Separated Bottom Ashes During the Steam Hydration Reaction." *Journal of the Taiwan Institute of Chemical Engineers*, 2019. **94**: p. 124-128.
8. Lin, C.Y., Wang, H.C., Hsu, W.Y., Huang, A.N. and **Kuo, H.P.\***, "Stage-wise Characterization of the High Shear Granulation Process by Impeller Torque Changing Rate." *Advanced Powder Technology*, 2019. **30**(8): p. 1513-1521.
9. Hsu, W.Y., Huang, A.N., and **Kuo, H.P.\***, "Approach the powder contact force, voidage, tensile stress, wall frictional stress and state diagram of powder bed by simple pressure drop monitoring." *Advanced Powder Technology*, 2020. **31**(1): p. 433-438.
10. Huang, A.N., Cheng, T.H. and **Kuo, H.P.\***, "A study of the axial and radial competition segregation in a rotating drum with internal diameter changing." *AIChE Journal*, 2020. **66**(5):e16921..

11. Huang, A.N., Cheng, H.H., Hsu, W.Y., Huang, C.C. and **Kuo, H.P.\***, “Transition from binder to matrix-forming: the effect of hydroxypropylmethylcellulose concentration on the properties of starch/hydroxypropylmethylcellulose granules prepared in a high shear granulator.” *Journal of the Taiwan Institute of Chemical Engineers*, 2020. **113**: p. 46-55.
12. Huang, A.N., Cheng, T.H., Hsu, W.Y., Huang, C.C. and **Kuo, H.P.\***, “DEM study of particle segregation in a rotating drum with internal diameter variations.” *Powder Technology*, 2021. **378(A)**: p. 430-440.
13. Furumoto, K., Narita, T., Fukasawa, T., Ishigami, T., **Kuo, H.P. \***, Huang, A.N. and Fukui, K., “Influence of pulse-jet cleaning interval on performance of compact dust collector with pleated filter”, *Separation and Purification Technology*, 2021. **279**: p. 119688.
14. Huang, A.N., Wang, X., Hsu, W.Y. and **Kuo, H.P. \***, “Particle segregation in a rotating drum with inner segmentation ring pair”, *Powder Technology*, 2021. **394**: p. 891–900.
15. 陳晴語、楊令琇、黃安妮、**郭修伯\***， “高效氣固旋風分離器的發展與應用” · 2021 · 工程 · **94(4)**期 · 12月號 · p. 81–92 ·
16. C.C. Lai<sup>†</sup>, A.N. Huang<sup>†</sup>, (<sup>†</sup>Co-first authors, contributed equally to this work), C.Y. Chen, W.Y. Hsu, J.P.K. Seville and **H.P. Kuo\***, 2022, “Modification of the spherical particle spring-damping contact model from contact velocity dependent restitution coefficients”, *Powder Technology*, **401**, 117294.
17. K. Furumoto, T. Fukasawa, T. Ishigami, M.I.F. Rozy, H.P. Kuo, A.N. Huang and K. Fukui, 2022, “Influence of pulse-jet cleaning pressure on performance of compact dust collector with pleated filter operated in clean-on-time mode”, *Advanced Powder Technology*, **33**, 103602.
18. A.N. Huang<sup>†</sup>, W.C. Chen<sup>†</sup>, C.L. Wu<sup>†</sup>, (<sup>†</sup>Co-first authors, contributed equally to this work), T. J. Lee, C.C. Huang and **H.P. Kuo\***, 2022, “Characterization of nasal aerodynamics and air conditioning ability using CFD and its application to improve the empty nose syndrome (ENS) submucosal floor implant surgery - Part I Methodology”, *Journal of the Taiwan Institute of Chemical Engineers*, **138**, 104481.
19. L.H. Yang<sup>†</sup>, C.Y. Chen<sup>†</sup>, (<sup>†</sup>Co-first authors, contributed equally to this work), W.Y. Hsu, K. Fukui, T. Fukasawa, A.N. Huang and **H.P. Kuo\***, 2022, “Effect of the operation temperature on the hydrodynamics and performances of a cyclone separator”, *Advanced Powder Technology*, **33**, 103791.
20. A.N. Huang, WY Hsu, T. Fukasawa, T. Ishigami, K. Fukui and **H.P. Kuo\***, 2023 “Performance Characterization of a Novel Compact Dust Collector with Pleated Filter Cartridges”, *Separation and Purification Technology*, **305**, 122468.

### Conference Papers

1. Hsu, W.Y., et al., “CFD-DPM Prediction of Pipe Erosion in a Staged Fluidized Bed”, in 6th International Workshop on Process Intensification (IWPI 2018). 2018: Taipei, Taiwan.
2. Hsu, W.Y. and **H.P. Kuo\***, “Particle Interparticle Force Characterization by Monitoring the Fluidized Bed Pressure Drop”, in The 6th International Conference on the

- Characterization and Control of Interfaces for High Quality Advanced Materials and the 54th Summer Symposium on Powder Technology (ICCCI2018). 2018: Kurashiki, Japan.
3. Lee, C.T., et al., “A Numerical and Experimental Study of Rice Husk Fast Pyrolysis in a Fluidized Bed Reactor”, in The 6th Asian Conference on Innovative Energy and Environmental Chemical Engineering” in the 16th Asian Conference on Fluidized-bed and Three-phase Reactor (ASCON-IEEChE 2018). 2018: Sun Moon Lake, Taiwan. p. 283-286.
  4. Lin, C.Y., et al., “Prediction of the Optimum Liquid-solid Ratio Required for the Granulation Process by Torque Measurement”, in The 6th Asian Conference on Innovative Energy and Environmental Chemical Engineering - the 16th Asian Conference on Fluidized-bed and Three-phase Reactor (ASCON-IEEChE 2018). 2018: Sun Moon Lake, Taiwan. p. 25-28.
  5. Lin, C.Y., Y.X. Lee, and **H.P. Kuo\***, “Operation Window Monitoring and Migration from Single to Binary Excipient in a High Shear Granulator”, in The 6th International Conference on the Characterization and Control of Interfaces for High Quality Advanced Materials and the 54th Summer Symposium on Powder Technology (ICCCI2018). 2018: Kurashiki, Japan.
  6. Hsu, W.Y., et al., “Characterization of the Particle Cohesion by the Pressure Drop Monitoring in a Fluidized Bed”, in the 18th Asian Pacific Confederation of Chemical Engineering Congress (APCChE 2019). 2019: Sapporo, Japan.
  7. Huang, A.N., W.Y. Hsu, and **H.P. Kuo\***, “Numerical investigation of combustion process in an industrial pulverized-coal boiler”, in the 18th Asian Pacific Confederation of Chemical Engineering Congress (APCChE 2019). 2019: Sapporo, Japan.
  8. Lin, C.Y., A.N. Huang, and **H.P. Kuo\***, “Effects of Filling on the Segregation Patterns in a High Fill Level Rotating Drum”, in the 18th Asian Pacific Confederation of Chemical Engineering Congress (APCChE 2019). 2019: Sapporo, Japan.
  9. Wang, X., A.N. Huang, and **H.P. Kuo\***, “Experimental and Numerical Studies of Particle Mixing in a Rotating Drum with an Inner Particle Motion Blocking Plate”, in the 18th Asian Pacific Confederation of Chemical Engineering Congress (APCChE 2019). 2019: Sapporo, Japan.
  10. Huang, A.N., C.-C. Huang, and **H.P. Kuo\***, “Computational Fluid Dynamics Simulations of Human Nasal Airflow”, in 2019 Japan/Taiwan/Korea Chemical Engineering Conference. 2019: Beppu, Japan.
  11. Hsu, W.Y., A.N. Huang, and **H.P. Kuo\***, “Characterization of the Particle Flow Properties by the Pressure Drop Monitoring in a Fluidized Bed”, in 2019 Japan/Taiwan/Korea Chemical Engineering Conference. 2019: Beppu, Japan.
  12. **Kuo, H.P. \***, W.Y. Hsu, and A.N. Huang, “Approach the Bulk Particle Flow Behavior by Pressure Drop Monitoring”, in 2019 Japan/Taiwan/Korea Chemical Engineering Conference. 2019: Beppu, Japan.
  13. Liao, W.C., A.N. Huang, and **H.P. Kuo\***, “Multiphase Eulerian Modeling of Biomass Pyrolysis in a Fluidized Reactor”, in 2020TWICHe 67th Annual Meeting. 2020: Hsinchu, Taiwan.
  14. Lai, C.C., A.N. Huang, and **H.P. Kuo\***, “Approaching the Soft-Sphere Discrete Element

- Modelling Spring-Damper Parameters by Contact Mechanics”, in 2020 TWIChE 67th Annual Meeting. 2020: Hsinchu, Taiwan.
15. Yang, H.H., A.N. Huang, and **H.P. Kuo\***, “Numerical Analysis of the Effect of Operating Temperature on Cyclone Performances”, in 2020 TWIChE 67th Annual Meeting. 2020: Hsinchu, Taiwan.
  16. Yang L.H., A.N. Huang, W.Y. Hsu and **H.P. Kuo\***, “Analysis of the Effect of Operation Temperature on Cyclone Performance through Drag Coefficient”, in 2021 8th Asian Particle Technology Symposium (APT2021). 2021: Osaka, Japan. (Attended by Zoom on-line)
  17. Liao, W.J., A.N. Huang, W.Y. Hsu and **H.P. Kuo\***, “Modeling Biomass Pyrolysis in a Bubbling Fluidized Bed using CFD”, in 2021 8th Asian Particle Technology Symposium (APT2021). 2021: Osaka, Japan. (Attended by Zoom on-line)
  18. Lai, C.C., A.N. Huang, W.Y. Hsu and **H.P. Kuo\***, “Revisit the Spring-damping Model Used in Discrete Element Method”, in 2021 8th Asian Particle Technology Symposium (APT2021). 2021: Osaka, Japan. (Attended by Zoom on-line)
  19. Huang A.N., W.Y. Hsu and **H.P. Kuo\***, “Analysis the Particle Temperature History in a Spray Dryer Using CFD”, in 2021 8th Asian Particle Technology Symposium (APT2021). 2021: Osaka, Japan. (Attended by Zoom on-line)
  20. **Kuo H.P.\***, A.N. Huang, X. Wang, T.C. Cheng, W.Y. Hsu, “An experimental and numerical study of particle mixing in a specially designed rotating drum”, in 2021 10th International Symposium on Mixing (ISMIP10). 2021: Kobe, Japan. (Attended by Zoom on-line)
  21. Yang, L.H., **H.P. Kuo**, A.N. Huang, “The Effect of Operation Temperature on Cyclone Performance”, in 2021 Conference on Theoretical and Applied Mechanics (CTAM2021). 2021: Taipei, Taiwan. (Attended by Zoom on-line)
  22. Chen, C.Y., L.H. Yang, A.N. Huang, W.Y. Hsu and **H.P. Kuo\***, “Analysis of the Effect of Operation Temperature on Cyclone Performance with CFD Simulation”, in 2021 Annual Meeting of the Taiwan Filtration and Separations Society. 2021: Taipei, Taiwan.
  23. W.C. Chen, A.N. Huang and **H.P. Kuo\***, 2022, “CFD Prediction of the Nasal Air Condition and Micron Particle Deposition of a Patient with Empty Nose Syndrome (ENS-IT) before and after Submucosal Implantation”, 12<sup>th</sup> Asian Aerosol Conference (AAC2022), 12-16 June, Taipei, Taiwan.
  24. C.Y. Liu, A.N. Huang and **H.P. Kuo\***, 2022, “ANN Prediction of Particle Segregation Trajectories in a Rotating Drum with Inner Segmentation Ring Pair”, P3-8-009, *TWIChE 68<sup>th</sup> Annual Meeting*, 高雄展覽館, 高雄, 6-7 January.
  25. W.C. Chen, A.N. Huang and **H.P. Kuo\***, 2022, “CFD Prediction of the Nasal Air Condition of a Patient with Empty Nose Syndrome (ENS-IT) before and after Submucosal Implantation”, P3-8-010, *TWIChE 68<sup>th</sup> Annual Meeting*, 高雄展覽館, 高雄, 6-7 January.
  26. H.T. Lin, A.N. Huang and **H.P. Kuo\***, 2022, “The Effect of Bed Packing on the Overall Heat Transfer and Products in the Rice Husk Fluidization Pyrolysis”, P3-8-011, *TWIChE 68<sup>th</sup> Annual Meeting*, 高雄展覽館, 高雄, 6-7 January.

27. P.C. Hsu, A.N. Huang and **H.P. Kuo\***, 2022, “The Effect of Distributor to Bed Pressure Drop Ratio on the Fluidization Dynamics in a Fluidized Bed”, P3-8-014, *TWICChE 68<sup>th</sup> Annual Meeting*, 高雄展覽館, 高雄, 6-7 January.
28. Wei-Chun Chen, An-Ni Huang, **H.P. Kuo\***, 2022, “CFD Prediction of the Nasal Air Condition and Micron Particle Deposition of a Patient with Empty Nose Syndrome (ENS-IT) before and after Submucosal Implantation”, *Annual Meeting of the Taiwan Filtration and Separations Society, National Yunlin University of Science & Technology*, 1 September.
29. 沈宜蓁、黃安妮\*、郭修伯\* (2022) “以 CFD-DEM 分析多孔性觸媒填充床之流體力學特性”, 中華民國力學學會第四十六屆全國力學會議 (CTAM 2022), 高雄科技大學, 高雄, 18-19 November.
30. M.J. Chuang, A.N. Huang and **H.P. Kuo\***, 2022, “A Numerical Study on the Packing and Conductivity of the Battery Cathode during and after Calendaring”, *TWICChE 69<sup>th</sup> Annual Meeting*, 淡江大學, 新北市, 2-3 December.
31. Y.S. Li, A.N. Huang and **H.P. Kuo\***, 2022, “Preparation of Fluid Catalytic Cracking Spheres by Nozzle Spray Drying”, *TWICChE 69<sup>th</sup> Annual Meeting*, 淡江大學, 新北市, 2-3 December.
32. I.C. Shen, A.N. Huang and **H.P. Kuo\***, 2022, “Analyzing the Gas Hydrodynamics in a Packed Bed with Porous Catalysts by CFD-DEM”, *TWICChE 69<sup>th</sup> Annual Meeting*, 淡江大學, 新北市, 2-3 December.
33. K.S. Pan, A.N. Huang and **H.P. Kuo\***, 2022, “A CFD-DEM Study on Particle Drying in a Continuous Countercurrent Fluidized Bed”, *TWICChE 69<sup>th</sup> Annual Meeting*, 淡江大學, 新北市, 2-3 December.

### Patents

1. 黃安妮、郭修伯·「石灰石脫硫副產物形成二水硫酸鈣之方法」·中華民國發明專利 I577634 (2017/04/11 –2033/07/07)
2. 黃安妮、郭修伯·“Method of combusting a sulfur-containing carbonaceous material with ash treatment” · USA utility patent US 10 760 788B2 (2020/9/01–2024/03/01)

### Honors and Others

1. Organizing Committee, the 7<sup>th</sup> International Conference on the Characterization and Control of Interfaces for High Quality Advanced Materials (ICCCI2022), 15-18 November, 2022 Fujiyoshida, Japan.
2. Associate Executive Editor, *Advanced Powder Technology*, the Society of Powder Technology, Japan (2022/03/01-)

3. Scientific Committee, the 10<sup>th</sup> International Symposium on Mixing in Industrial Processes (ISMIP10), 29 November-2 December, 2021, Kobe, Japan.
4. International Organizing Committee, 8<sup>th</sup> Asian Particle Technology Symposium (APT2021), 11-14 October, 2021, Osaka, Japan.
5. 109學年度「陳芳燦講座」講座學者 (2021)
6. Execute Editor, Advanced Powder Technology, the Society of Powder Technology, Japan (2018/01/01- 2022/02/28)

