

**Keh, Huan Jang** (葛煥彰)

Professor

B.S. in Chemical Engineering  
National Taiwan University, 1978

Ph.D. in Chemical Engineering  
Carnegie Mellon University, 1984

### **Research and Professional Interests**

Colloid and interface science  
Electrokinetic phenomena;  
Particle-particle and particle-wall  
hydrodynamic interactions;  
Motion of aerosol and slip particles;  
Motion of porous and soft particles;

Phoretic transport  
Electrophoresis; Diffusiophoresis;  
Thermocapillary motion;  
Thermophoresis; Photophoresis;  
Osmophoresis

### **Journal Papers**

1. Y. C. Chang and **H. J. Keh**, "Thermophoresis and Photophoresis of Aerosol Cylinders with Effects of Thermal Stress Slip", *American Journal of Heat and Mass Transfer*, 4(2), 85-103, 2017(Jan)
2. H. C. Chiu and **H. J. Keh**, "Electrophoresis and diffusiophoresis of a colloidal sphere with double-layer polarization in a concentric charged cavity", *Microfluidics and Nanofluidics*, 21(3), 45 (1-12), 2017(Mar), (SCI,EI)
3. C. Y. Li and **H. J. Keh**, "Thermophoresis of a spherical particle in a microtube", *Journal of Aerosol Science*, 113, 71-84, 2017(Nov), (SCI,EI)
4. H. C. Chiu and **H. J. Keh**, "Diffusiophoresis of a charged particle in a microtube", *Electrophoresis*, 38(19), 2468-2478, 2017(Oct), (SCI,EI)
5. H. Y. Yeh and **H. J. Keh**, "Axisymmetric Slow Motion of a Prolate Particle in a Circular Capillary with Slip Surfaces", *Cmes-Computer Modeling in Engineering & Sciences*, 113(3), 343-366, 2017(Sep)
6. C. Y. Li and **H. J. Keh**, "Thermophoresis of a particle in a concentric cavity with thermal stress slip", *Aerosol Science and Technology*, 52(3), 269-276, 2018(Mar), (SCI,EI)
7. Y. Z. Yeh and **H. J. Keh**, "Diffusiophoresis of a charged porous shell in electrolyte gradients", *Colloid and Polymer Science*, 296(3), 451-459, 2018(Mar), (SCI,EI)
8. H. C. Ma and **H. J. Keh**, "Diffusioosmotic Effects on Water Transport in a PEM Fuel Cell", *American Journal of Heat and Mass Transfer*, 5(1), 35-48, 2018(Apr)
9. Y. C. Chiu and **H. J. Keh**, "Diffusiophoresis of a charged particle in a charged cavity with arbitrary electric double layer thickness", *Microfluidics and Nanofluidics*, 22(8), 84 (1-13), 2018(Aug), (SCI,EI)
10. Y. C. Chang and **H. J. Keh**, "Thermophoresis at small but finite Peclet numbers", *Aerosol Science and Technology*, 52(9), 1028-1036, 2018(Sep), (SCI,EI)
11. Y. C. Chiu and **H. J. Keh**, "Diffusiophoresis of a Charged Porous Particle in a Charged

- Cavity", *Journal of Physical Chemistry B*, 122(42), 9803-9814, 2018(Oct), (SCI,EI)
12. Y. Z. Yeh and **H. J. Keh**, "Sedimentation Velocity and Potential in Dilute Suspensions of Charged Porous Shells", *Journal of Physical Chemistry B*, 122(45), 10393-10400, 2018(Nov), (SCI,EI)
  13. Y. W. Su and **H. J. Keh**, "Electrokinetic Flow of Salt-Free Solutions in a Fibrous Porous Medium", *Journal of Physical Chemistry B*, 123(45), 9724-9730, 2019(Nov), (SCI,EI)
  14. C. Y. Lin and **H. J. Keh**, "Sedimentation Velocity and Potential in Dilute Suspensions of Charge-Regulating Porous Spheres", *Journal of Physical Chemistry B*, 123(13), 3002-3009, 2019(Apr), (SCI,EI)
  15. C. Y. Li and **H. J. Keh**, "Axisymmetric thermophoresis of an aerosol particle in a spherical cavity", *Journal of Aerosol Science*, 135, 33-45, 2019(Sep), (SCI,EI)
  16. Y. C. Chang and **H. J. Keh**, "Diffusiophoresis of a Colloidal Cylinder at Small Finite Peclet Numbers", *Colloids and Interfaces*, 3(2), 44 (1-11), 2019(Jun)
  17. Y. C. Chang and **H. J. Keh**, "Diffusiophoresis of Colloidal Spheres at Small Péclet Numbers", *Trends in Chemical Engineering*, 17, 91-98, 2019(Dec)
  18. Y. M. Tseng and **H. J. Keh**, "Thermophoretic Motion of an Aerosol Sphere in a Spherical Cavity", *European Journal of Mechanics B Fluids*, 81, 93-104, 2020(Jun), (SCI,EI)
  19. Y. C. Lai and **H. J. Keh**, "Transient Electrophoresis of a Charged Porous Particle", *Electrophoresis*, 41(3), 259-265, 2020(Feb), (SCI,EI)
  20. R. H. Luo and **H. J. Keh**, "Electrokinetic Flow and Electric Conduction of Salt-Free Solutions in a Capillary", *Electrophoresis*, 41, 1503-1508, 2020, (SCI,EI)
  21. W. C. Lin and **H. J. Keh**, "Diffusiophoresis in Suspensions of Charged Soft Particles", *Colloids and Interfaces*, 4, 30 (1-17), 2020
  22. M. X. Li and **H. J. Keh**, "Start-up Electrophoresis of a Cylindrical Particle with Arbitrary Double Layer Thickness", *Journal of Physical Chemistry B*, 124, 9967-9973, 2020, (SCI,EI)
  23. Y. M. Tseng and **H. J. Keh**, "Thermophoresis of a Cylindrical Particle at Small Finite Péclet Numbers", *Aerosol Science and Technology*, 55, 54-62, 2021, (SCI,EI)
  24. C. Y. Chou and **H. J. Keh**, "Slow Rotation of a Particle in an Eccentric Cavity with Slip Surfaces", *European Journal of Mechanics B Fluids*, 86, 150-156, 2021, (SCI,EI)
  25. M. C. Lee and **H. J. Keh**, "Effects of Inertia on the Slow Rotation of a Slip Spherical Particle", *European Journal of Mechanics B Fluids*, 88, 67-71, 2021, (SCI,EI)
  26. W. L. Chen and **H. J. Keh**, "Electroosmosis and Electric Conduction of Electrolyte Solutions in Charge-Regulating Fibrous Porous Media", *Colloids and Interfaces*, 5, 19 (1-14), 2021
  27. M. X. Li and **H. J. Keh**, "Transient Rotation of a Spherical Particle in a Concentric Cavity with Slip Surfaces", *Fluid Dynamics Research*, 53, 045509 (1-16), 2021,

(SCI,EI)

28. W. C. Lin and **H. J. Keh**, "Electrophoresis and Electric Conduction in Salt-Free Suspensions of Charged Soft Particles", *Colloids and Interfaces*, 5, 45 (1-16), 2021
29. Y. C. Lai and **H. J. Keh**, "Transient Electrophoresis in a Suspension of Charged Particles with Arbitrary Electric Double Layers", *Electrophoresis*, 42, 2126-2133, 2021, (SCI,EI)
30. R. H. Luo and **H. J. Keh**, "Electrophoresis and Electric Conduction in a Salt-Free Suspension of Charged Particles", *Electrophoresis*, 42, 2134-2142, 2021, (SCI,EI)
31. M. C. Lee and **H. J. Keh**, "Slow axisymmetric rotation of a sphere in a circular tube with slip surfaces", *Fluid Dynamics Research*, 53, 065502 (1-12), 2021, (SCI,EI)
32. C. Y. Chou and **H. J. Keh**, "Low-Reynolds-Number Rotation of a Soft Particle inside an Eccentric Cavity", *European Journal of Mechanics B Fluids*, 91, 194-201, 2022, (SCI,EI)
33. L. J. Jhuang and **H. J. Keh**, "Slow Axisymmetric Rotation of a Soft Sphere in a Circular Cylinder", *European Journal of Mechanics B Fluids*, 95, 205-211, 2022, (SCI,EI).
34. J. Q. Liao and **H. J. Keh**, "Slow Rotation of a Sphere about its Diameter Normal to Two Planes with Slip Surfaces", *Fluid Dynamics Research*, 54, 035502 (1-18), 2022, (SCI,EI).
35. Y. J. Lin and **H. J. Keh**, "Electrokinetic Flow and Electric Conduction of a Salt-Free Solution in a Charged Slit", *Trends in Physical Chemistry*, 22, 51-63, 2022.
36. C. L. Chang and **H. J. Keh**, "Slow Rotation of a Soft Spherical Particle Normal to One or Two Plane Walls", *Colloids and Interfaces*, 7, 18 (1-12), 2023.

#### Conference Papers

1. **H. J. Keh** and P. Y. Huang, "Diffusiophoresis of a Charged Soft Particle", International Conference on Advances in Engineering Sciences [ICAES], Phuket, Thailand, 2017(Jul)
2. **H. J. Keh** and C. Y. Li, "Thermophoresis of an Aerosol Particle in a Microtube", International Conference on Fluid Flow Heat and Mass Transfer [FFHMT'17], Toronto, Canada, 2017(Aug)
3. **H. J. Keh**, "Diffusiophoresis of a Charged Soft Particle in an electrolyte gradient", 2017 Taiwan-Israel Bilateral Workshop on Optofluidics and Electrokinetics, Hsinchu, Taiwan, 2017(Nov)
4. J. S. Li and **H. J. Keh**, "Transient Electrophoresis of a Dielectric Circular Cylinder with Arbitrary Double-Layer Thickness", International Conference on Fluid Flow Heat and Mass Transfer [FFHMT'18], Niagara Falls, Canada, 2018(Jun)
5. C. Y. Lin and **H. J. Keh**, "Sedimentation of Charge-Regulating Porous Particles", 13th International Symposium on Electrokinetic Phenomena [ELKIN 2019], Boston, USA,

2019(Jun)

6. **H. J. Keh** and C. Y. Li, "Thermophoresis of an Aerosol Particle in a Cavity", 13th International Conference on Advanced Computational Engineering and Experimenting (ACEX-2019), Athens, Greece, 2019(Jul)
7. **H. J. Keh** and Y. M. Tseng, "Thermophoresis of an Aerosol Particle in a Cavity", 7th International Conference on Fluid Flow, Heat and Mass Transfer [FFHMT'20], Niagara Falls, Canada, 2020(Nov) (virtually)

### Honors and Others

1. Distinguished Researcher Award (傑出特約研究員獎), National Science Council (National Science and Technology Council), Taiwan, ROC, 2005.
2. Academic Award (學術獎), Ministry of Education, Taiwan, ROC, 2008.
3. Dean, College of Engineering, National Taiwan University, 2005-2011.
4. Excellent Teaching Award (教學優良教師獎), National Taiwan University, 2016, 2017
5. Member, International Advisory Board, International Symposium on Electrokinetic Phenomena [ELKIN], 2013-now.
6. Scientific Committee Member, International Conference on Fluid Flow, Heat and Mass Transfer [FFHMT], Canada, 2016-now.
7. Distinguished Professor (特聘教授), National Taiwan University, 2006-now.