

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 Papers¹⁻⁴⁶

1. H. C. Chiu and **H. J. Keh**, "Thermocapillary Motion of a Fluid Sphere in a Circular Tube", *American Journal of Heat and Mass Transfer*, 3, 15-36, 2016(Jan)
2. W. C. Li and **H. J. Keh**, "Electrophoretic mobility of charged porous shells or microcapsules and electric conductivity of their dilute suspensions", *Colloids and Surfaces a-Physicochemical and Engineering Aspects*, 497, 154-166, 2016(May), (SCI,EI)
3. H. C. Chiu and **H. J. Keh**, "Electrophoresis of a colloidal sphere with double-layer polarization in a microtube", *Microfluidics and Nanofluidics*, 20(4), 64 (1-13), 2016(Apr), (SCI,EI)
4. H. C. Liu and **H. J. Keh**, "Electrophoresis and electric conduction in a suspension of charged soft particles", *Colloid and Polymer Science*, 294(7), 1129-1141, 2016(Jul), (SCI,EI)
5. **H. J. Keh**, "Diffusiophoresis of charged particles and diffusioosmosis of electrolyte solutions", *Current Opinion in Colloid & Interface Science*, 24, 13-22, 2016(Aug), (SCI,EI)
6. W. C. Li and **H. J. Keh**, "Diffusiophoretic mobility of charge-regulating porous particles", *Electrophoresis*, 37(15-16), 2139-2146, 2016(Aug), (SCI,EI)
7. 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)
8. 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)
9. 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)

10. H. C. Chiu and **H. J. Keh**, "Diffusiophoresis of a charged particle in a microtube", *Electrophoresis*, 38(19), 2468-2478, 2017(Oct), (SCI,EI)
11. 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)
12. 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)
13. 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)
14. 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)
15. 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)
16. 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)
17. 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)
18. 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)
19. 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)
20. 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)
21. 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)
22. 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)
23. Y. C. Chang and **H. J. Keh**, "Diffusiophoresis of Colloidal Spheres at Small Peclet Numbers", *Trends in Chemical Engineering*, 17, 91-98, 2019(Dec)
24. 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)
25. Y. C. Lai and **H. J. Keh**, "Transient Electrophoresis of a Charged Porous Particle", *Electrophoresis*, 41(3), 259-265, 2020(Feb), (SCI,EI)

26. 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)
27. W. C. Lin and **H. J. Keh**, "Diffusiophoresis in Suspensions of Charged Soft Particles", *Colloids and Interfaces*, 4, 30 (1-17), 2020
28. 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)
29. 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)
30. 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)

Conference Papers¹⁻⁶¹

1. **H. J. Keh** and W. C. Li, "Electrophoresis of a Charged Porous Shell or Microcapsule", 6th International Colloids Conference, Berlin, Germany, 2016(Jun)
2. **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)
3. **H. J. Keh** and C. Y. Li, "Thermophoresis of an Aerosol Particle in a Mirotube", International Conference on Fluid Flow Heat and Mass Transfer [FFHMT'17], Toronto, Canada, 2017(Aug)
4. **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)
5. 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)
6. 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)
7. **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)
8. **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

- (Ministry of Science and Technology), 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
 5. Excellent Teaching Award (教學優良教師獎), National Taiwan University, 2017
 6. International Scientific Committee Member, International Conference of Microfluidics, Nanofluidics and Lab-on-a-Chip, Dalian, China, June 2016.
 7. Member, International Advisory Board, International Symposium on Electrokinetic Phenomena [ELKIN], 2013-now.
 8. Scientific Committee Member, International Conference on Fluid Flow, Heat and Mass Transfer [FFHMT], Canada, 2016-now.
 9. Distinguished Professor (特聘教授), National Taiwan University, 2006-now.

