Curriculum Vitae

LIM Kian Meng
Associate Professor, Mechanical Engineering, National University of Singapore

Websites: [http://me.nus.edu.sg/staff.php?id=2062] [http://blog.nus.edu.sg/limkm/]
ResearcherID: [http://www.researcherid.com/rid/B-2556-2010]
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Academic Qualifications

PhD in Mechanical Engineering, Stanford University, 2000
MSc in Mechanical Engineering, Stanford University, 1995
MEng in Mechanical Engineering, NUS, 1996
BEng (1st Class Honours) in Mechanical Engineering, NUS, 1993

Work Experience

2008 –	Associate Professor (Mechanical Engineering, NUS)
2005 – 2013	Fellow (Singapore-MIT Alliance)
2001 – 2008	Resident Advisor (Prince George Park Residences, NUS)
2002 – 2008	Assistant Professor (Bioengineering, NUS)
2000 – 2008	Assistant Professor (Mechanical Engineering, NUS)
1993 – 2000	Senior Tutor (NUS)

Awards

2017	Minister for National Development's R&D Awards (Team award NUS and LTA)
2018	Innovative Teaching Award (Gold)
2008, 2015	NUS Annual Teaching Excellence Award and Engineering Educator Award
1995	NUS Overseas Scholarship

Research Interests

Computational Mechanics: Finite Element, Boundary Element, Finite Difference, Spectral.
Fast Computation: FFT and Fast Multipole Methods, Asymptotic Methods.
Microfluidics: AC Electrokinetics, Dielectrophoresis, Ultrasonic Acoustophoresis.
Vibration, Acoustics, and Hearing Research.
Structural Dynamics: Mechanical Modelling and Control

Teaching Areas

Finite Element Analysis. Acoustics. Plates and Shells. Computational Biomechanics. Introduction to Numerical Simulation. Mechanics of Machines. Dynamics and Vibration. Engineering Mathematics. Engineering Principles and Practice.

Selected Research Projects/Grants

- "Mitigation of Noise from Construction Sites Based on Sonic Cage and Innovative Noise Barrier Designs"
- "The Sonic Crystal Project - Meeting the Trio Challenges of Providing Natural Ventilation, Daylight and Noise Mitigation"
- "Advanced Computational Tools for Fast Analysis and Design of Ships against Vibration and Noise"
- "Computational Acoustics Model for Real-time Identification of Underwater Objects"
- "Exploratory Study of Potential Designs for Station Keeping of Stratospheric Balloons"
- "Design-Simulate-Fabricate Micro-/Nano-fluidics for Cell and Biomolecule Manipulation"
- "A Multistage-Multiscale-Multidisciplinary Approach for Rapid Detection of Microbial Contamination in Water"

Selected Publications

Sepehrirahnama S. and Lim K.M. (2021) "Acoustophoretic agglomeration patterns of particulate phase in a host fluid" *Microfluidics and Nanofluidics* **24**, pp. 1–14.

Sepehrirahnama S. and Lim K.M. (2020) "Generalized potential theory for close-range acoustic interactions in the Rayleigh limit" *Physical Review E* **102**, 043307.

Sepehrirahnama S., Ong E.T., Lee H.P. and K.M. Lim (2020) "Numerical modeling of free-surface wave effects on flexural vibration of floating structures" *International Journal of Computational Methods*, **17**, 1940016.

Sepehrirahnama S., Ong E.T., Lee H.P. and Lim K.M. (2019) "Fast computation for vibration study of partially submerged structures using low resolution hydrodynamic model" *Journal of Fluids and Structures*. **91**, 102756.

Ramesh S.S., Ma J., Lim K.M., Lee H.P. and Khoo B.C. (2018) "Numerical Evaluation of Station-keeping Strategies for Stratospheric Balloons" *Aerospace Science and Technology*, **80**, pp. 288–300.

Wijaya F.B., Sepehrirahnama S. and Lim K.M. (2018) "Interparticle Force and Torque on Spheroidal Particles in Acoustophoresis' *Wave Motion*, **81**, pp 28–45.

Mohapatra A.R., Sepehrirahnama S. and Lim K.M. (2018) "Experimental measurement of interparticle acoustic radiation Force in the Rayleigh limit" *Physical Review E*, **97**, Article 053105.

Ramesh S.S. and Lim K.M. (2017) "Reduced-order model for underwater target identification using proper orthogonal decomposition" *Journal of Sound and Vibration*, **391**, pp. 50-72.

Wijaya F.B. and Lim K.M. (2015) "Numerical Calculation of Acoustic Radiation Force and Torque Acting on Non-spherical Rigid Particles" *Acta Acustica united with Acustica*, **101**, pp. 531 – 542.

Ramesh S.S., Lim K.M. and Khoo B.C. (2012) "An Axisymmetric Hypersingular Boundary Integral Formulation for Simulating Acoustic Wave Propagation in Supercavitating Flows" *Journal of Sound and Vibration*, **331**, pp. 4313–4342.

Hartono D., Liu Y., Tan P.L., Then X.Y.S., Yung L.Y.L and Lim K.M. (2011) "On-Chip Measurements of Cell Compressibility via Acoustic Radiation" *Lab on a Chip*, **11**, pp 4072–4080.

Liu Y. and Lim K.M. (2011) "Particle Separation in Microfluidics using a Switching Ultrasonic Field" *Lab on a Chip*, **11**, pp 3167–3173.

Cui H.H., Voldman J., He X.F. and Lim K.M. (2009) "Separation of particles by pulsed dielectrophoresis" *Lab on a Chip*, **9**, pp 2306–2312.

Le D.V., White J., Peraire J., Lim K.M. and Khoo B.C. (2009) "An implicit immersed boundary method for three-dimensional fluid-membrane interactions" *Journal of Computational Physics*, **228**, pp 8427–8449.

He X.F., Lim K.M. and Lim S.P. (2008) "Fast BEM solvers for Poisson-type equations" *Computer Methods in Engineering and Sciences*, **35**, pp 21–48.

Le D.V., Khoo B.C. and Lim K.M. (2008) "An implicit-forcing immersed boundary method for simulating viscous flows in irregular domains" *Computer Methods in Applied Mechanics and Engineering*, **197**, pp 2119–2130.

Ong E.T. and Lim K.M. (2005) "Three-dimensional singular boundary elements for corner and edge singularites in potential problems" *Engineering Analysis with Boundary Elements*, **29**, pp 175–189.

Ong E.T., Lee H.P. and Lim K.M. (2004) "A fast Fourier transform on multipoles (FFTM) algorithm for solving Helmholtz equation in acoustics analysis" *Journal for the Acoustical Society of America*, **116**, pp 1362–1371.

Ong E.T., Lim K.M., Lee K.H. and Lee H.P. (2003) "A fast algorithm for three-dimansional potential fields calculation: Fast Fourier Transform on Multipole (FFTM)." *Journal of Computational Physics*, **192**, pp 244–261.

Lim K.M. and Steele C.R. (2002). "A three-dimensional nonlinear active cochlear model analyzed by the WKB-numeric method" *Hearing Research* **170** pp 190–205.