

## Publication List of Prof. Ching-Chang Chieng 2010-2017

### Book Chapters

1. Shih-Wei Hung, Pai-Yi Hsiao, and Ching-Chang Chieng\*, “Studies of Cardio Toxin Protein Adsorption on Mixed Self-Assembled Monolayers Using Molecular Dynamics Simulations" Molecular Dynamics / Book 2", ISBN 979-953-307-865-5, Publisher INTECH, Croatia, 2012

### Journal Papers (2010-2017)

1. Z Zhao, Y Bao, LT Chu, JKL Ho, CC Chieng, TH Chen\* - “Microfluidic bead trap as a visual bar for quantitative detection of oligonucleotides” Vol.17, No. 10, Lab on a Chip, 2017 pp 3240-3245,
2. Yu-Hsin Tung, Yuh-Ming Ferng, Richard W. Johnson, Ching-Chang Chieng\* “Transient LOFA computations for a VHTR Using one-twelfth Core Flow Models” , Nuclear Engineering and Design vol 301, May 2016, pp 89-100
3. Zichen Zhao, Shan Chen, John Kin Lim Ho, Ching-Chang Chieng, and Ting-Hsuan Chen\* "Visual detection of nucleic acids based on Mie scattering and the magnetophoretic effect", Analyst 140, no. 23 (2015): 7876-7885.
4. Shih-Wei Hung, Pai-Yi Hsiao, Chien-Pin Chen, Ching-Chang Chieng, ” Wettability of Graphene-coated Surface: Free Energy Investigations Using Molecular Dynamics Simulation” The Journal of Physical Chemistry, Part C, Volume 119, Issue 15, 16 April 2015, pp 8103-8111
5. Wen-Chi Cheng, Kaichao Sun, Lin-Wen Hu, Ching-Chang Chieng “Computational Fluid Dynamics Analysis for Asymmetric Power Generation in a Prismatic Fuel Block of Fluoride-Salt-Cooled High-Temperature Test Reactor” ASME Journal of Nuclear Engineering and Radiation Science, January 01, 2015, Volume 1, Issue 1
6. Wen-Chi Cheng, Yuh-Ming Ferng, Chen, S.R. Ching-Chang Chieng “Development of CFD methodology for investigating thermal-hydraulic characteristics in a PWR dome”, Nuclear Engineering and Design, Volume 284, 1 April, 2015, pp. 284-292 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
7. Y. Li, Z. Zhao, M. L. Lam, W. Liu, P. P. Yeung, C.-C. Chieng, and T.-H. Chen “Hybridization-Induced Suppression of Coffee Ring Effect for Nucleic Acid Detection” Sensors & Actuators: B. Chemical, Volume 206, January 2015, pp 56-64 (impact factor =4.101 and ranking 2/57 in INSTRUMENTS & INSTRUMENTATION).
8. Yang, Z., Chen, C.P. , Chen\*, Z.J., Chieng, C.C.” Multiscale modeling of macroparticle stretching in nanofluidic flows “Journal of Computational

- Multiphase Flows”, Volume 6, Issue 2, 1 June 2014, Pages 169-177
9. Yu-Hsin Tung, Richard W. Johnson\*, Yuh-Ming Ferng, Ching-Chang Chieng “Modeling strategies to compute natural circulation using CFD in a VHTR after a LOFA” , Volume 275, Nuclear Engineering and Design, pp80-90, August 2014 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  10. Min-Tsung Kao, Yuh-Ming Ferng\*, Ching-Chang Chieng, “Investigating effects of sphere blockage ratio on the characteristics of flow and heat transfer in a sphere array” Volume 81, Energy Conversion and Management, pp 455-464, May 2014 (IF=2.75 Rank=7/135, 5.19% Mechanics)
  11. Chen, S.R., Lin, W.C., Ferng, Y.M. \* , Chieng, C.C., Pei, B.S.,” CFD simulating the transient thermal-hydraulic characteristics in a  $17 \times 17$  bundle for a spent fuel pool under the loss of external cooling system accident “, Annals of Nuclear Energy, Volume 73, November 2014, Pages 241 -249
  12. Tsung-Ju Chen, Jen-Kuei Wu, Yu -Cheng Chang, Chien-Yu Fu, Tsung -Pao Wang, Chun-Yen Lin, Hwan-You Chang, Ching-Chang Chieng, Chung-Yuh Tzeng, and Fan-Gang Tseng,” High-efficiency rare cell identification on a high-density self-assembled cell arrangement chip”, BIOMICROFLUIDICS Volume: 8 Issue: 3 Article Number: 036501 Published: MAY 2014
  13. Yu-Hsin Tung, Richard W. Johnson, Yuh-Ming Ferng, Ching-Chang Chieng\* “Bypass Flow Computations on the LOFA transient in a VHTR” Applied Thermal Engineering, Volume 62-issue 2-pp415-423, January 2014 (SCI, 5yr IF=2.389, rank=11/121, Mechanical Engineering).
  14. Yu-Hsin Tung, Yuh-Ming Ferng, Richard W. Johnson, Ching-Chang Chieng\*, “Study of natural circulation in a VHTR after a LOFA using different turbulence models” Nuclear Engineering and Design, Volume 263, October 2013, pp 206-217, (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  15. S.R. Chen, Wei-Cheng Lin, Yuh-Ming Ferng\*, Ching-Chang Chieng, B.S. Pei, “Development of 3-D CFD methodology to investigate the transient thermal-hydraulic characteristics of coolant in a spent fuel pool” Nuclear Engineering and Design, Volume 275, August 2014, pp 272-280 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  16. Wei-Cheng Lin, Yuh-Ming Ferng\*, Ching-Chang Chieng “Flow and Heat Transfer Characteristics of a Helically Coiled Heat Exchanger Using Different Turbulence Models” Nuclear Engineering and Design, Volume 263, Oct 2013, pp 77-86, (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  17. Min-Tsung Kao, Yu-Hsin Tung, Yuh-Ming Ferng \* , Ching-Chang Chieng, Minking Chyu,” 3D measurements and numerical computations of heat transfer coefficients on spheres in an array” International Journal of Thermal Sciences,

- Vol 68, June 2013, pp.110-118(SCI, 1.667, rank=16/122, Mechanical Engineering)
18. Hung, Shih-Wei; Hsiao, Pai-Yi; Lu, Ming-Chang; Chieng, Ching-Chang, "Thermodynamic Investigations Using Molecular Dynamics Simulations with Potential of Mean Force Calculations for Cardiotoxin Protein Adsorption on Mixed Self-Assembled Monolayers" *The Journal of Physical Chemistry B*, Volume 116(42), pp.12661-12668, 2012 (SCI, 5yr IF=4.061, rank=32/134, Physical Chemistry)
  19. Hsieh, H.-Y.,Huang, T.-W., Xiao, J.-L.,Yang, C.-S.,Chang, C.-C.,Chu, C.-C.,Lo, L.-W.,Wang, S.-H.,Wang, P.-C.,Chieng, C.-C.,Lee, C.-H., Tseng, F.-G. "Fabrication and modification of dual-faced nano-mushrooms for tri-functional cell theranostics: SERS/fluorescence signaling, protein targeting, and drug delivery" *Journal of Materials Chemistry*, Volume 22, Issue 39, 21 October 2012, Pages 20918-20928(SCI, IF=5.968, rank=17/232, 5yr IF=5.992, rank=19/232, multidisciplinary Material science)
  20. C-Y Wu, Y.M. Ferng, C.C. Chieng\*, Z.C. Kang, CFD Analysis for Full Vessel Upper Plenum in Maanshan Nuclear Power Plant, *Nuclear Engineering and Design* Volume 253, Pages 285-293, 2012 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  21. Yiban Xu, Michael Conner, Kun Yuan, Milorad B. Dzodzo, Zeses Karoutas, Steven A. Beltz, Sumit Ray, Teresa A. Bissett, Ching-Chang Chieng, Min-Tsung Kao, Chung-Yun Wu "Study of Impact of the AP1000TM Reactor Vessel Upper Internals Design On Fuel Performance" *Nuclear Engineering and Design* Volume 252, Pages:128-134, 2012 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
  22. Po-Jui Li, Tzu-Chen Hung\*, Bau-Shei Pei, Jaw-Ren Lin, Ching-Chang Cheing: A thermodynamic analysis of high temperature gas-cooled reactors for optimal waste heat recovery and hydrogen production", *Journal of applied Energy*, 99, pp183-191, 2012(SCI, 3.915, rank=2/79, Energy & Fuels).
  23. Yung-Sheng Lin, Pai-Yi Hsiao, and Ching-Chang Chieng\*"Thermophysical characteristics of Ethylene Glycol-based Copper nanofluids Using Nonequilibrium and Equilibrium Methods" *International Journal of Thermal Sciences*, volume 62, pp.56-60, 2012. (SCI, 1.667, rank=16/122, Mechanical Engineering).
  24. Y. M. Ferng\*, W.C. Lin, and C.C. Chieng, "Numerically Investigated Effects of Different Dean Number and Pitch Size on Flow and Heat Transfer Characteristics in a Helically Coil-Tube Heat Exchanger", *Applied Thermal Engineering*, 36(2012) 378-385 (SCI, 5yr IF=2.389, rank=11/121, Mechanical

Engineering).

25. Yen-Liang Lin, Chang CM, I-Da Yang, Ching-Chang Chieng, Fangang Tseng\*, “Energy Cascading by Triple-bubble Interactions via Time-delayed Control”, J. Micromech. Microeng. Volume: 22 Issue: 1 Article Number: 015014 DOI:10.1088/0960-1317/22/1/015014 JAN 2012(SCI, 5yr IF=2.313, rank=14/132, Mechanics).
26. Min-Tsung Kao, Chung-Yun Wu, Ching-Chang Chieng\*, Yiban Xu, Kun Yuan, Milorad Dzodzo, Michael Conner, Steven Beltz, Sumit Ray, Teresa Bissett, “CFD Analysis of PWR Core Top and Reactor Vessel Upper Plenum Internals Subdomain Models”, Nuclear Engineering and Design Volume 241, Issue:10, Pages:4181-4193, 2011(SCI, 5yr IF=0.954, rank=22/35, Nuclear Science and Technology)
27. R.-G. Wu, C.-S. Yang, C.-C. Chieng and F.-G. Tseng, “Nanocapillary Electrophoretic Electrochemical Chip: towards analysis of biochemicals released by single cells” Royal Society Interface- Focus Vol.1, Issue 5, pp.744 -753, 2011, (Interface Focus is a sister journal to Interface, SCI, 5yrIF=4,591, rank=5/55)
28. Shih-Wei Hung, Pai-Yi Hsiao, and Ching-Chang Chieng\*, Dynamic Information for Cardiotoxin Protein Desorption from a Methyl-Terminated Self-Assembled Monolayer Using Steered Molecular Dynamics Simulation, The Journal of Chemical Physics, Vol.134, Issue 19, 2011 (SCI, 5yr IF=3.238, rank=7/32, PHYSICS, ATOMIC, MOLECULAR & CHEMICAL, DOI: 10.1063/1.3592559 )
29. Yung-Sheng Lin, Pai-Yi Hsiao, and Ching-Chang Chieng\*,” Roles of Nanolayer and Particle Size on Thermophysical Characteristics of Ethylene Glycol-based Copper Nanofluids, Applied Physics Letters, vol.98, Issue 15, 2011(SCI, 5yr IF=3.787, rank=17/125, Applied PHYSICS)
30. Yung-Sheng Lin, Pai-Yi Hsiao, and Ching-Chang Chieng\*,” “Constructing a Force Interaction Model for Thermal Conductivity Computation using Molecular Dynamics Simulation - Ethylene Glycol as a Example”, The Journal of Chemical Physics, Vol.134, Issue 15, 2011 (SCI, 5yr IF=3.238, rank=7/32, PHYSICS, ATOMIC, MOLECULAR & CHEMICAL , DOI: 10.1063/1.3578184)
31. Min-Tsung Kao, Min Lee\*, Yuh-Ming Ferng, and Ching-Chang Chieng “Heat Transfer Deterioration in a Supercritical Water Channel “Nuclear Engineering and Design, Volume 240, Issue:10, Pages:3321 -3328, 2010 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and Technology)
32. C.Y. Wu, Y.M. Ferng\*, C.C. Chieng, C.C. Liu, ”Investigating the advantages and disadvantages of realistic approach and porous approach for closely packed pebbles in CFD simulation” Nuclear Engineering and Design, 240, Issue 5, pp1151-1159, May, 2010 (SCI, 5yr IF=0.954, rank=15/35, Nuclear Science and

- Technology)
33. Joe-Ming Chang, Fangang Tseng, and Ching-Chang Chieng\*, "Mixed-SAM Surfaces Monitoring CTX-Protein Part I: Using Atomic Force Microscope Measurements", IEEE Transactions on NanoBioscience, Volume 9, Number 4, 2010, pp289-296 (SCI, 5yrIF=1.658, rank=36/66, Nanoscience and Nanotechnology)
  34. Shih-Wei Hung, Pai-Yi Hsiao, and Ching-Chang Chieng\*, "Mixed-SAM Surfaces Monitoring CTX-Protein Part II: Using Molecular Dynamics Simulations", IEEE Transactions on NanoBioscience, Volume 9, Number 4, 2010, pp297-306 (SCI, 5yrIF=1.658, rank=36/66, Nanoscience and Nanotechnology, Nanoscience and Nanotechnology)
  35. Hsien-Chih Peng, Po-Hon Chen, Hung-Wen Chen, Ching-Chang Chieng, Tsung-Kuang Yeh, Chin Pan, Fan-Gang Tseng\*, "Passive cathodic water/air management device for micro-direct methanol fuel cells, Journal of Power Sources, Volume: 195 Issue:21 1 November 2010, Pages7349-7358 (SCI, 5yrIF=5.009, rank=8/81, Energy and Fuels).
  36. Yen-Liang Lin, I-Da Yang, Ching-Chang Chieng, Fangang Tseng\*, "High throughput micro droplet generator array controlled by two-dimensional dynamic virtual walls, Volume 9, Issue 4-5 (2010), Page 681-693, Microfluid Nanofluid (2010) (5yrIF=3.503, rank=5/58, INSTRUMENTS & INSTRUMENTATION))
  37. Soon-Lin Chen, Chun-Ting Lin, Ching-Chang Chieng, Fan-Gang Tseng, "Highly efficient CO2 bubble removal on carbon nanotube supported nanocatalysts for direct methanol fuel cell", Journal of Power Sources, Volume: 195 Issue: 6 Special Issue: Sp. Iss. SI Pages: 1640-1646 MAR 15 2010.(SCI, 5yrIF=5.009, rank=8/81, Energy and Fuels).
  38. C. M. Chang , I. D. Yang , Y. L. Lin, C. C. Chieng\*, F. G. Tseng " Efficient transfer and concentration of energy between explosive dual bubbles via time-delayed interactions" Volume 9, Issue 2(2010), Page 329-340, Microfluid Nanofluid (2010) (5yrIF=3.503, rank=5/58,, INSTRUMENTS & INSTRUMENTATION)

### **Conference Paper s**

1. BL Luk, ML Lam, TH Chen, Jiyun Zhao, SM Tsui, CC Chieng\*, "3D Immersive Display Application for Nuclear Education and Public Acceptance", ICONE26-81161, International conference on Nuclear engineering, ICONE26, July 22-26 2018, London, England, UK
2. Y W Lai, C H Leung , M L Lam\*, Z Zhao, B L Luk, C-C Chieng and T-H

Chen“Virtual Presentation of Pressurized Water Reactor in Normal Operation and Accident Scenario Like the Fukushima as an Education Tool”, International Conference on Engineering Education & Research, Sydney, Australia, 21 - 24 November 2016.

3. Shangzhen Xie, Miu-Ling Lam\*, Zichen Zhao, Bing Lam Luk, Ting-Hsuan Chen, John K.L. Ho, Ching-Chang. Chieng, 3D Immersive Display Application for Public Illustration of a Station Blackout for CPR1000, NUTHOS-11, October 9-13, 2016, Gyeongju, Korea
4. Zhao Zichen, Lee Min, Chen Ting-Hsuan, Ho John Kin Lim, and Chieng Ching-Chang, "Vessel failure modes and timing using MAAP5 for CPR1000", International Congress on Advances in Nuclear Power Plants, San Francisco, USA, April 2016.
5. Y.H. Tung, Y.M. Ferng, R. Johnson, C.C. Chieng\*, “Transient LOFA computations for a VHTR using Large and Segment Domain Models”, COMP2015 (2<sup>nd</sup> Frontier in Computational Physics Conference:Energy Sciences), June 3-5, 2015, Zurich, Switzerland
6. Cheng, W.-C., Sun, K., Hu, L.-W , Chieng, C.-C.” CFD analysis for asymmetric power generation in a prismatic fuel block of fluoride-salt-cooled high-temperature test reactor” International Congress on Advances in Nuclear Power Plants, ICAPP 2014, Volume 1, 2014, Pages 423 -431, International Congress on Advances in Nuclear Power Plants, ICAPP 2014; Charlotte, NC; United States; 6 April 2014 through 9 April 2014; Code 107534
7. Wen-Chi Cheng, Yuh-Ming Ferng, Hsin-Ru Chen, and C. C. Chieng “CFD Analysis for Dome Section in Maanshan Nuclear Power Plant”, ICONE-21, Cheng Du, China, July 30-August 2, 2013
8. Yu-Hsin Tung, Richard W. Johnson, , Yuh-Ming Ferng, Ching-Chang Chieng “Effects of Bypass Flow on the LOFA Transient Computations in a VHTR”, ICONE-21, Cheng Du, China, July 30-August 2, 2013
9. Yu-Hsin Tung, Richard W. Johnson, Yuh-Ming Ferng, Ching-Chang Chieng’ “Study of Natural Circulation in a VHTR after a LOFA Using Different Turbulence Models”, 7<sup>th</sup> International Symposium on Turbulence, Heat and Mass Transfer, Palermo, Sicily, Italy, September 24-27, 2012
10. Min-Tsung Kao, Yu-Hsin Tung, Yuh-Ming Ferng, Ching-Chang Chieng, Minking Chyu,”Heat Transfer Coefficient Distributions on Ball Surface in Pebble Bed Core Using Different Turbulence Models”, 7<sup>th</sup> International Symposium on Turbulence, Heat and Mass Transfer, Palermo, Sicily, Italy, September 24-27, 2012
11. Wei-Chen Lin, Yuh-Ming Ferng, Ching-Chang Chieng, “Flow and Heat Transfer

Characteristics for Helical Heat Exchanger Using Different Turbulence Models”  
7<sup>th</sup> International Symposium on Turbulence, Heat and Mass Transfer, Palermo,  
Sicily, Italy, September 24-27, 2012

12. C. Lin, C.J. Chen, C.C. Chieng, and F.G.Tseng, “Dynamic Effects of Droplet Impingement on Nano Textured Surface for High Efficient Spray Cooling, The 16<sup>th</sup> International Conference on Solid-State Sensors, Actuators and Microsystems, TRANSDUCERS’ 11, June 5-9, 2011, Beijing, China
13. Cheng Lin, Chih-Hao Lee and Ching-Chang Chieng, “Numerical Analysis of Nanofluid as Heat Transfer Fluid in Multiplates Type Reciprocate Magnetic Refrigeration System”, International Symposium on Thermal and Materials Nanoscience and Nanotechnology, TMNN2011, Antalya, Turkey, May 29-June 3, 2011
14. Yung-Sheng Lin, Pai-Yi Hsiao and Ching-Chang Chieng\* “Thermophysical characteristics of Ethylene Glycol based Copper nanofluids Using Nonequilibrium and Equilibrium Methods” International Symposium on Thermal and Materials Nanoscience and Nanotechnology, TMNN2011, Antalya, Turkey, May 29-June 3, 2011
15. Min-Tsung Kao, Yu-Hsin Tung, Yuh-Ming Ferng, Ching-Chang Chieng, Minking Chyu “Heat Transfer Characteristics for Pebble Beds in HTGR” American Nuclear Society Annual Meeting, Hollywood, Florida, USA, June 26-30, 2011
16. Wei-Chen Lin, Yuh-Ming Ferng, Ching-Chang Chieng ”Numerical Simulations of Helical Coiled Heat Exchanger in HTGR”, American Nuclear Society Annual Meeting, Hollywood, Florida, USA, June 26-30, 2011
17. Yu-Hsin Tung, Yuh-Ming Ferng, and Ching-Chang Chang, “Numerical Simulation of Film Condensation Mechanisms for Advanced Nuclear Reactors”, The Third Asian Symposium on Computational Heat Transfer and Fluid Flow, Kyoto, Japan, September 22-26, 2011
18. Shih-Wei Hung, Pai-Y-Hsiao, and Ching-Chang Chieng, “Characterization and Application of Self-Assembled Monolayers for Protein Adsorption Using Molecular Dynamics Simulations”, 2<sup>nd</sup> International Conference on Multifunctional, Hybrid and Nanomaterials, 6-10 March 2011, Strasbourg, France
19. Yiban Xu, Kun Yuan, Milorad B. Dzodzo, Michael E. Conner, Steven A. Beltz, Sumit Ray, Teresa A. Bissett, Ching-Chang Chieng, Min-Tsung Kao, Chung-Yun Wu, Computational Fluid Dynamics Analysis of AP1000 Reactor Vessel Upper Plenum and Top Core Slab, 2010 LWR Fuel Performance Meeting/TopFuel/WRFPM, September 26-29, 2010, Orlando, Florida
20. Michael E. Conner, Zeses Karoutas, Steven A. Beltz, Yiban Xu, Kun Yuan, Milorad B. Dzodzo, Teresa A. Bissett, Ching-Chang Chieng, Min-Tsung Kao,

Chung-Yun Wu, Study of Impact of the AP1000 Upper Internals Design on Fuel Performance, 2010 LWR Fuel Performance Meeting/TopFuel/WRFPM, September 26-29,2010, Orlando,Florida

21. Yen-Liang Lin, I-Da Yang, Ching-Chang Chieng, Fangang Tseng, “A 2D Chamber-Free Micro Droplet Generator Array Controlled by Dynamic Virtual Walls”, MEMS 2010: 23rd IEEE International Conference on Micro Electro Mechanical Systems, January 24-28, Hong Kong, China, Proceedings: IEEE MEMS Systems, **Pages:** 1155-1158
22. Min-Tsung Kao, Chung-Yun Wu, Ching-Chang Chieng, Yiban Xu, Kun Yuan, Milorad B. Dzodzo, Michael E. Conner, Steven A. Beltz, Sumit Ray, “CFD Analysis of PWR Reactor Vessel Upper Plenum Sections – Flow Simulation in Control Rods Guide Tubes”, ICONE18, Xian, China, May 2010
23. Chung-Yun Wu, Ching-Chang Chieng, Kun Yuan, Yiban Xu, Milorad B. Dzodzo, Michael E. Conner, Steven A. Beltz, Sumit Ray, CFD Analysis of PWR Core Top Region – Top Fuel Assembly and Top Nozzle Regions, ICONE18, Xian, China, May 2010
24. Lin YL, Yang ID, Chieng CC, Tseng FG, “A 2-D Chamber-Free Micro Droplet Generator Array Controlled by Dynamic Virtual Walls”, IEEE-MEMS 2010 Conference, Hong Kong, Jan 24-28,2010 (Proceedings IEEE MEMS, pages 1155-1158).