NGUYEN Duy Thien

CONTACT INFORMATION

Senior R&D Staff
Energy Systems Development Group
Advanced Reactor Engineering and Development Section
Oak Ridge National Laboratory
Email: nguyend@ornl.gov

PROFILE

Thien D. Nguyen is a Senior R&D Staff at the Oak Ridge National Laboratory. His research focuses on thermal-fluid dynamics with a combination of experimental measurements and numerical modeling addressing various engineering applications such as mechanical, aerospace, civil, chemical and nuclear. He has extensive experience in the development and application of advanced instrumentation (optical fiber sensor, optical sensors, X-ray, and mass spectrometer) and innovative measurement techniques (laser Doppler velocimetry (LDV), laser-induced fluorescent (LIF), particle image velocimetry (PIV, stereoscopic-PIV, and Tomographic PIV), high-speed thermography, shadowgraphy and Schlieren imaging)

He also has a strong background in computational fluid dynamics modeling (RANS and LES) for investigating safety-related phenomena, systems and component designs in nuclear, mechanical, and aerospace engineering. These include studies of single and multiphase flows, laminar to turbulent flows, in-compressible and compressible flows under normal and critical conditions, fission products (gas and particulate) transport, flow-structure interaction (FSI) of hydro-power pumped storage penstock, and hydrodynamics design of modular fish passage modules. Dr. Nguyen is also an expert in turbulent flow analysis via mode decomposition approach (POD, DMD), Validation and Verification, and Uncertainty Quantification.

Dr. Nguyen has been awarded and served as the Principal Investigator (PI), Co-PI, and Investigator for several funded projects from U.S. Department of Energy, NSUF, and sub-contracts from U.S. National Laboratories, and Industries. These projects investigate thermal-hydraulics effects in nuclear engineering applications such as HTGR Pebble Bed Reactor, NGNP Reactor Building Response to Depressurization Accidents, Nuclear Fuel Assemblies (Light Water Reactors, Sodium Fast Reactors), Natural Circulation in HTGR Upper Plenum and Reactor Passive Cooling System, and Transport of Fission Products in reactor buildings and components.

Joining ORNL since 04/2021, Dr. Nguyen has worked on projects:

- to support the design of ITER precooler design using CFD (RANS),
- to support the thermal-hydraulics designs of molten salt facilities (Unsteady RANS),
- to characterize structural performances of metal and composite materials in HydroPower Pumped Storage Penstock design coupling Fluid-Structure calculations (CFD-FSI),
- to support the hydrodynamics design of modular fish passage modules used in hydropower stations using URANS and LES approaches,
- to develop an experimental facility of vortex ring and produce validation data for nuclear detonation model using Background Oriented Schlieren (BOS) and PIV techniques,
- to characterize thermal-fluid behaviors of energy storage featuring liquid pump and droplet injection (RANS, URANS, LES with VOF and Lagrangian modeling).

Research Grants

Department of Energy - Nuclear Energy University Programs (DOE-NEUP) FY2021 (Total $800,000, as PI).
Department of Energy - Nuclear Energy University Programs (DOE-NEUP) FY2021 (Total $800,000, as Co-PI).
Department of Energy - Nuclear Energy University Programs (DOE-NEUP) FY2020 (Total $600,000, as PI).
Department of Energy - Office of Nuclear Energy's Versatile Test Reactor program FY2020 (Total $250,000, as Co-PI).
Department of Energy - Office of Nuclear Energy's Versatile Test Reactor program FY2019 (Total $250,000, as Co-PI).
Department of Energy - Office of Nuclear Energy's Versatile Test Reactor program FY2018 (Total $250,000, as Co-PI).
Department of Energy (DOE) General Scientific Infrastructure Grants FY2017 (Total $235,985, as PI).
Department of Energy - Nuclear Energy University Programs (DOE-NEUP) FY2017 (Total $800,000, as Co-PI).
Department of Energy - Nuclear Energy University Programs (DOE-NEUP) FY2016 (Total $800,000, as Co-PI).

Several research sub-constracts from Idaho National Lab, Sandia National Lab, Argonne National Lab, and Industries.

Education

Bachelor of Aeronautical Engineering, Program of Excellence Engineer between Vietnam and France (PFIEV), HoChiMinh City University of Technology, Vietnam National University, September 2004.
Master of Civil and Environmental Engineering, Fluid Dynamics Laboratory, Ritsumeikan University, Japan, September 2007.
Doctor of Civil and Environmental Engineering, Fluid Dynamics Laboratory, Ritsumeikan University, Japan, October 2010.

Working Experience

Research Assistant Professor, Thermal-Hydraulic Research Laboratory, Texas A&M University, College Station, Texas, USA, 2015-2021.
Postdoctoral fellow, NERS Department, University of Michigan, Ann Arbor, USA, 2014-2015.
Postdoctoral researcher, TEMPO laboratory, University of Valenciennes and Hainaut-Cambresis, University of Lille North of France, 2011-2014.
Research associate, Mechanical, Materials and Aerospace Engineering Department, Illinois Institute of Technology, USA, 2009-2010.
Research assistant, Civil and Environmental Engineering Department, Ritsumeikan University, Japan, 2005-2010.
Lecturer, Aeronautical Engineering Department, HoChiMinh City University of Technology, Vietnam National University, Vietnam, 2004-2005.

Awards

Monthly scholarship for best grade students (1999-2004) by the Vietnamese Ministry of Education.
The first prize for Vietnam National Student Research (2004-2005) by the Vietnamese Ministry of Education.
The first prize for Vietnam National Technology Creation (VIFOTEC 2004-2005) by the Vietnam Fund of Technology Creation.

The Odon Vallet scholarship for best students (2005) by Odon Vallet.
Japanese Government Scholarship for Master student (2005-2007).
Japanese Government Scholarship for Doctoral student (2007-2010).
Research Fund for Accelerating International Research Activities (2009) by Ritsumeikan University.

Professional, Social Activities

Reviewer for Physics of Fluids.
Reviewer for Measurement Science and Technology, Institute of Physics Publishing (IOP).
Reviewer for Flow Measurement and Instrumentation, Elsevier.
Reviewer for ASME Heat Transfer, ASME.
Reviewer for International Journal of Heat and Mass Transfer, Elsevier.
Member of Vietnamese Youth and Student Association in Japan.
Member of Japan Society of Civil Engineers.
Member of American Physical Society.
Soccer team leader in high school, undergraduate and graduate school.
Participating social activities in aiding Vietnamese people.

Teaching

MEEN 344 Fluid Mechanics, NUEN 623 Heat Transfer and Fluid Flow (Annually Invited Lectures), MEEN-644 Numerical Heat Transfer & Fluid Flow (Annually Invited Lectures).

Supervisory and Mentoring

Supervise, Co-supervise, and mentor 14 PhD students, 11 Master students, and 16 Undergraduate students.

Publications

Refereed journals: 38 (18 as the 1st author) published in prestigious journals.
Refereed conferences: 52.
Citations: 976; H-index: 19; i10-index: 28.

Dissertation

- **Thien Duy Nguyen**, Development of Stereo Particle Image Velocimetry: Application to turbulent flow over a backward-facing step, *Master dissertation*, Ritsumeikan University, September, 2007.
- **Thien Duy Nguyen**, Proper Orthogonal Decomposition (POD) based measurement models for engineering flows, *Doctoral dissertation*, Ritsumeikan University, 2010.

Journal papers

1. R Muyshondt, NK Anand, Y Hassan, **T.D. Nguyen**, Flow and heat transfer in the wake of a triangular arrangement of spheres, *Physics of Fluids* 33 (11), 115127.
2. **T.D. Nguyen**, S King, Y Hassan, Experimental investigation of turbulent characteristics in pore-scale regions of porous media, *Experiments in Fluids* 62 (72), 1-27, 2021.
3. R Muyshondt, **T.D. Nguyen**, Y. Hassan, N.K. Anand, Experimental Measurements of the Wake of a Sphere At Subcritical Reynolds Numbers, *ASME Journal of Fluid Engineering*, 143(6):061301, 2021.
4. C. Matozinhos, G. Tomaz, **T.D. Nguyen**, Y. Hassan, Experimental investigation of turbulent flow characteristics in cross-flow planes of a 5×5 rod bundle with a

spacer grid, *International Journal of Heat and Fluid Flow*, Vol. 87, 108757, 2021.

5. **T.D. Nguyen**, B Maher, Y Hassan, An experimental investigation of a square supersonic jet and impinging jet on an inclined plate, *AIP Advances* 10(10), 105132, 2020.

6. C. Matozinhos, G. Tomaz, **T.D. Nguyen**, A. dos Santos, Y. Hassan, Experimental measurements of turbulent flows in a rod bundle with a 3-D printed channel-type spacer grid, *International Journal of Heat and Fluid Flow*, Vol. 85, 108674, 2020.

7. M. Childs, R. Muyshondt, R. Vaghetto, **T.D. Nguyen**, Y. Hassan, Experimental Study On the Effect of Localized Blockages On the Friction Factor of a 61-pin Wire-Wrapped Bundle, *Journal of Fluids Engineering*, Vol. 142 (11), 2020.

8. B Maher, R Chavez, CQT Gabriel, **T.D. Nguyen**, Y Yassan, A fluid mechanics explanation of the effectiveness of common materials for respiratory masks, *International Journal of Infectious Diseases*, Vol. 99 (2020), 2020, pp. 505-513.

9. **T.D. Nguyen**, R. Vaghetto, Y. Hassan, Experimental investigation of turbulent wake flows in a helically wrapped rod bundle in presence of localized blockages, *Phys. Fluids*, Vol. 32(7), 075113, 2020.

10. R. Chavez, D. Orea, B. Choi, **T.D. Nguyen**, N.K. Anand, Y. Hassan, P. Sabharwall, An Experimental Study of Solid and Liquid Aerosol Transport in a Horizontal Square Channel, **Aerosol Science and Technology**, *Accepted*, 2020.

11. **T.D. Nguyen**, B. Maher, Y. Hassan, Flowfield Characteristics of a Supersonic Jet Impinging on an Inclined Surface, *AIAA Journal*, Vol. 58 (3), 2020, pp. 1240-1254.

12. **T.D. Nguyen**, L. White, R. Vaghetto, Y. Hassan, High-fidelity velocity measurements in a totally blocked interior subchannelof a wire-wrapped 61-pin hexagonal fuel bundle, *Nuclear Engineering and Design*, Vol. 353 (110234), 2019.

13. D Orea, R Vaghetto, **T.D. Nguyen**, Y. Hassan, Experimental measurements of flow mixing in cold leg of a pressurized water reactor, *Annals of Nuclear Energy*, 107137, 2019.

14. **T.D. Nguyen**, L. White, R. Vaghetto, Y. Hassan, Turbulent flow and vortex characteristics in a blocked subchannel of a helically wrapped rod bundle, *Experiments in Fluids*, Vol. 60(8), 2019.

15. **T.D. Nguyen**, R. Muyshondt, Y. Hassan, N.K. Anand, Experimental investigation of cross flow mixing in a randomly packed bed and streamwise vortex characteristics using particle image velocimetry and proper orthogonal decomposition analysis, *Phys. Fluids*, Vol. 31(2), 025101, 2019.

16. N.R. Quintanar, **T.D. Nguyen**, R. Vaghetto, Y. Hassan, Natural circulation flow distribution within a multi-branch manifold, *International Journal of Heat and Mass Transfer*, 135, 2019.

17. **T.D. Nguyen**, B. Maher, Y. Hassan, Effects of nozzle pressure ratio and nozzle-to-plate distance to flowfield characteristics of an under-expanded jet impinging on a flat surface, *Aerospace*, in Special Issue of *Under-Expanded Jets*, 2019.

18. A.A.C. Santos, M. Childs, **T.D. Nguyen**, Y. Hassan, Convergence Study and Uncertainty Quantification of Average and Statistical PIV Measurements in a Matched Refractive Index 5×5 Rod Bundle with Mixing Vane Spacer Grid, *Experimental Thermal and Fluid Science* 102, 2019, pp. 215-231.

19. H. Li, NK Anand, Y. Hassan, **T.D. Nguyen**, Large eddy simulations of the turbulent flows of twin parallel jets, *International Journal of Heat and Mass Transfer* 129, 1263-1273.

20. N.Goth, P.Jones, **T.D. Nguyen**, R. Vaghetto, Y. Hassan, A. Obabko, E. Merzari, P. Fischer, Comparison of experimental and simulation results on interior subchannels of a 61-pin wire-wrapped hexagonal fuel bundle, *Nuclear Engineering and Design*, 338, 2018, pp. 130-136.

21. **T.D. Nguyen**, E. Kappes, S. King, Y. Hassan, V. Ugaz, Time-resolved PIV measurements in a low-aspect ratio facility of randomly packed spheres and flow analysis using modal decomposition, *Experiments in Fluids*, 59 (8), 127.

22. N. Goth, P. Jones, **T.D. Nguyen**, R. Vaghetto, Y. Hassan, N Salpeter, Salpeter, E. Merzari, PTV/PIV measurements of turbulent flows in interior subchannels of a 61-pin wire-wrapped hexagonal fuel bundle, *International Journal of Heat and Fluid Flow*, 71, 295-304.

23. **T. D. Nguyen**, N. Goth, P. Jones, R. Vaghetto, Y. A. Hassan, Stereoscopic PIV measurements of near-wall flow in a tightly packed rod bundle with wire spacers, *Experimental Thermal and Fluid Science*, 92, 2018.

24. S. R. Yang, E. Kappes, **T. D. Nguyen**, R. Vaghetto, Y. A. Hassan, Experimental study on 1/28 scaled NGNP HTGR reactor building test facility response to depressurization event, *Annals of Nuclear Energy*, 114, 2018.

25. R. Vaghetto, P. Jones, N. Goth, M. Childs, S. Lee, **T. D. Nguyen**, Y. A. Hassan, Pressure Measurements in a Wire-Wrapped 61-Pin Hexagonal Fuel Bundle, *Journal of Fluid Engineering*, 140(3), 2017.

26. **T. D. Nguyen**, Y. A. Hassan, Stereoscopic particle image velocimetry measurements of flow in a rod bundle with a spacer grid and mixing vanes at a low Reynolds number, *International Journal of Heat and Fluid Flow*, 67 (Part A), 2017, pp.202-219.

27. **T. D. Nguyen**, N. Goth, M. Childs, P. Jones, S. Lee, R. Vaghetto, Y. A. Hassan, PIV measurements of turbulent flows in a 61-pin wire-wrapped hexagonal fuel bundle, *International Journal of Heat and Fluid Flow*, 65, 2017, pp.47-59.

28. **T. D. Nguyen**, S. Harmand, PIV measurements in a turbulent wall jet over a backward-facing step in a three-dimensional, non-confined channel, *Flow Measurement and Instrumentation*, 42, 2015, pp. 26-39.

29. S. Poncet, **T.D. Nguyen**, J. Pellé, S. Harmand, R. Da Soghe, C. Bianchini, S. Viazzo, Turbulent impinging jet flow into an unshrouded rotor-stator system: hydrodynamics and heat transfer, *International Journal of Heat and Fluid Flow*, 44, 2013, p.719-734.

30. **T. D. Nguyen**, S. Harmand, Heat transfer and vortical structures around a rotating cylinder with a spanwise disk and low-velocity crossflow, *International Journal of Heat and Mass Transfer*, 64, 2013, pp. 1014-1030.

31. N. C. H. Le, R. Yokokawa, D. V. Dao, **T. D. Nguyen**, J. C. Wells and S. Sugiyama, Highly-sensitive fluorescence detection and imaging with microfabricated total internal reflection (TIR)-based devices, *Journal of Micro-Nano Mechatronics*, 7(1-3), 2012, pp. 45-59. (invited article)

32. **T. D. Nguyen**, J. Pellé, S. Harmand, S. Poncet, PIV measurements of an air jet impinging on an open rotor-stator system, *Experiments in Fluids*, 53, 2012, pp. 401-412.

33. **T. D. Nguyen**, J. C. Wells, C. V. Nguyen, Velocity measurement of near-wall flow over inclined and curved boundaries by extended interfacial particle image velocimetry, *Flow Measurement and Instrumentation*, 23(1), 2012.

34. **T. D. Nguyen**, J. C. Wells, P. Mokhasi, D. Rempfer, Proper orthogonal decomposition (POD) based estimations of the flowfield from particle image velocimetry (PIV) wall gradient measurements in the backward-facing step flow, *Measurement Science and Technology*, 21(11), 2010, pp. 1-15.

35. **T. D. Nguyen**, J. C. Wells, C. V. Nguyen, Wall shear stress measurement of near-wall flow over inclined and curved boundaries by stereo interfacial particle image, *International Journal of Heat and Fluid Flow*, 31, 2010, pp. 442-449. (invited article)

36. Nguyen, C., **Nguyen, T. D.**, Wells, J., Nakayama, A., Interfacial PIV to resolve flows in the vicinity of curved surfaces, *Experiments in Fluids*, 48(4), 2010. (invited article)

37. N. C. H. Le, R. Yokokawa, D. V. Dao, **T. D. Nguyen**, J. C. Wells and S. Sugiyama, Versatile Microfluidic Total Internal Reflection (TIR)-based Devices: Application to Microbeads Velocity Measurement and Single Molecule Detection with Upright and Inverted Microscope, *Lab on a Chip*, 9 (2009), pp. 244-250. T

38. C. V. Nguyen, **T. D. Nguyen**, J. C. Wells, Sensitivity of PIV/ Interface Gradiometry to Estimated Wall Position, *Journal of the Visualization Society of Japan*, 26(2), pp. 203-206, 2006.

Conference, symposium presentations

1. B. Maher, S Yang, **T. D. Nguyen**, Y Hassan, Experimental Study of Flowfield and Pressure Fluctuation of a Supersonic Impinging Jet, AIAA Aviation 2020 Forum, 2558.

2. R Muyshondt, **T. D. Nguyen**, Y Hassan, N.K. Anand, Non-Intrusive Velocity and Temperature Measurements of Buoyant Flows from Inductively Heated Dual-Spheres, *Transactions of the American Nuclear Society* 121 (1), 1633-1636, 2019.

3. **T. D. Nguyen**, S King, YA Hassan, Lagrangian Velocity Measurements in a Pore-Scale of a Randomly Packed Bed Using Matching-Refractive-Index and Time-Resolved PTV Techniques, *Transactions of the American Nuclear Society* 121 (1), 1637-1639, 2019.

4. BH Choi, D Orea, **T. D. Nguyen**, N.K. Anand, Y Hassan, P Sabharwall, Numerical Investigation of Fluid Flow in a Square Channel — Versatile Test Reactor Program, *Transactions of the American Nuclear Society* 121 (1), 1149-1152, 2019.

5. D Orea, R Chavez, **T. D. Nguyen**, R Vaghetto, N.K. Anand, YA Hassan, P Sabharwall, Experimental Investigation of Surrogate Particle Transport in a Turbulent Channel Flow: Versatile Test Reactor Program, *Transactions of the American Nuclear Society* 121 (1), 1153-1156, 2019.

6. D Orea, R Vaghetto, **T. D. Nguyen**, V Kyriakopoulos, Y Hassan, Benchmark Exercise on Flow Mixing in Cold Leg of a Pressurized Water Reactor, *Transactions of the American Nuclear Society* 121 (1), 1783-1786, 2019.

7. D Orea, BH Choi, **T. D. Nguyen**, R Vaghetto, NK Anand, YA Hassan, P Sabharwall, Experimental Study of Surrogate Particle Transport and Deposition In a Square Channel Using Particle Tracking Technique, *ASME International Mechanical Engineering Congress & Exposition*, Utah, 2019.

8. BH Choi, D Orea, **T. D. Nguyen**, R Vaghetto, NK Anand, YA Hassan, P Sabharwall, Numerical Study of Particle Transport and Deposition in a Horizontal Channel Using a Lagrangian-based Modelling Approach, *ASME International Mechanical Engineering Congress & Exposition*, Utah, 2019.

9. GCQ Tomaz, CF Matozinhos, **T. D. Nguyen**, Y Hassan, Artificial Neural Network Method for Automatic Mask Generation for PIV: Applications in a 5x5 Rod Bundle with Mixing Vane Spacer Grids, *18th International Topical Meeting on Nuclear Reactor Thermal Hydraulics - NURETH18*, Portland, 2019.

10. W Lance, N Goth, J Pettyjohn, **T. D. Nguyen**, R Vaghetto, Y Hassan, High-Fidelity Velocity Measurements in a Totally Blocked Subchannel of a Wire-Wrapped 61- Pin Hexagonal Fuel Bundle, *18th International Topical Meeting on Nuclear Reactor Thermal Hydraulics - NURETH18*, Portland, 2019.

11. B Maher, **T. D. Nguyen**, C Matozinhos, G Tomaz, Y Hassan, Turbulent Flow Measurements of the Under-Expanded Free Jet and Jet Impinging on a Flat Surface, *Transactions of the American Nuclear Society*, 120, 997-1000.

12. D Orea, BH Choi, **T. D. Nguyen**, R Vaghetto, NK Anand, Y Hassan, An Investigation to Develop Measurement Techniques for Quantifying Fission Product Transport in a Gas-cooled Fast Reactor Versatile Test Reactor Program, *Transactions of the American Nuclear Society*, 120, 1015-1018, 2019.

13. L White, N Goth, **T. D. Nguyen**, R Vaghetto, Y Hassan, High-Fidelity Velocity Measurements in a Totally Blocked Interior Subchannel of a Wire-wrapped 61-Pin Hexagonal Fuel Bundle, *Thermal hydraulic Simulations and Experiments for the Safety Assessment of MEtal cooled reactors (SESAME)*, March, 2019.

14. G Busco, **T. D. Nguyen**, YA Hassan, CFD Study of the Coolant Flow Mixing Inside VHTR Upper Plenum, *Meeting on Advances in Thermal Hydraulics (ATH '18)*, 2018.

15. N Tsuzuki, M Chaki, **T. D. Nguyen**, YA Hassan, KV Kirkland, Flow Behavior Observation of Single-Phase Air Jet Simulating a Nozzle of Terry Turbine Using PIV, *Transaction of American Nuclear Society*, 119, 2018.

16. N. Goth, L. White, W. Headley, **T. D. Nguyen**, R. Vaghetto, Y. Hassan, High Resolution Transverse Plane PIV Measurements of a 61-Pin LMFBR Fuel Bundle, *Transaction of American Nuclear Society*, 119, 2018.

17. C. Powell, C. Estrada-Perez, **T. D. Nguyen**, Y. Hassan, PIV/PTV Measurements of Lateral Velocity Components in a 5x5 PWR Bundle with Mixing Vanes, *Transaction of American Nuclear Society*, 119, 2018.

18. S. King, E. Kappes, **T. D. Nguyen**, Y. Hassan, V. Ugaz, Probability Analysis of Velocity Distribution in a Facility of Randomly Packed Spheres Featuring Matching-Refractive-Index and Time-resolved PIV Techniques, *Transaction of American Nuclear Society*, 119, 2018.

19. E. Kappes, M. Marciniak, S. King , A. Mills, R. Muyshondt, **T. D. Nguyen**, Y. A. Hassan, V. Ugaz, Time-resolved particle image velocimetry measurements in a low-aspect ratio pebble bed reactor, *Transaction of the American Nuclear Society*, Vol. 118, Philadelphia, June 2018.

20. N. Quintanar, **T. D. Nguyen**, R. Vaghetto, Y. Hassan, Particle Image Velocimetry (PIV) Measurements in 1/23 Scaled Water Reactor Cavity Cooling System (WR-CCS), *Transaction of the American Nuclear Society*, Vol. 118, Philadelphia, June 2018.

21. A. A. Campagnole dos Santos, M. Childs, **T. D. Nguyen**, Y. Hassan, Matched Refractive Index Rod Bundle and Spacer Grid Testing Facility Experiments, *Transaction of the American Nuclear Society*, Vol. 118, Philadelphia, June 2018.

22. A. Alwafi, **T. D. Nguyen**, N.K. Anand, Y. Hassan, Time-Resolved Particle Image Velocimetry Measurements and Proper Orthogonal Decomposition Analysis of Jet Impingement in a HTGR Upper Plenum, *Transaction of the American Nuclear Society*, Vol. 118, Philadelphia, June 2018.

23. E. Kappes, M. Marciniak, S. King , A. Mills, R. Muyshondt, **T. D. Nguyen**, Y. A. Hassan, V. Ugaz, Time-resolved velocity measurements in a matched refractive index facility of randomly packed spheres, *The 18th International Conference on Nuclear Engineering ICONE26*, July, London, England.

24. **T. D. Nguyen**, E. Kappes, M. Marciniak, S. King, Y. A. Hassan, V. Ugaz, Spatiotemporally resolved PIV/SPIV velocity measurements in a MRI facility of randomly packed spheres, *International Society for Porous Media (InterPore) 2018 - The 10th Annual Meeting and Jubilee*, New Orleans, May 2018.

25. E. Kappes, M. Marciniak, S. King , **T. D. Nguyen**, Y. Hassan, V. Ugaz, High-fidelity velocity measurements in a matched refractive index facility of randomly packed spheres, *The 3rd Thermal and Fluids Engineering Conference* (TFEC), Florida, March 4–7, 2018.

26. S. King, E. Kappes, M. Marciniak, **T. D. Nguyen**, Y. A. Hassan, V. Ugaz, Pressure drop measurements in a versatile experimental facility of packed shperes, *American Nuclear Society 2017 Winter Meeting and Technology Expo*, 2017. (refereed)

27. **T. D. Nguyen**, M. Childs, M. Marciniak, Y. A. Hassan, High Resolution Stereoscopic PIV Measurements In a 5x5 Rod Bundle with Mixing Vane, *American Nuclear Society 2017 Annual Meeting*, 2017. (refereed)

28. N. Goth, M. Childs, P. Jones, S. Lee, **T. D. Nguyen**, R. Vaghetto, Y. A. Hassan, Time-Resolved PIV/PTV Measurements on Interior Subchannels of a Wire-Wrapped 61-pin Hexagonal Fuel Bundle, *American Nuclear Society 2017 Annual Meeting*, 2017. (refereed)

29. N. Goth, M. Childs, P. Jones, S. Lee, **T. D. Nguyen**, R. Vaghetto, Y. A. Hassan, Particle Image Velocimetry Measurements in a Wire-Wrapped 61-Pin Hexagonal Fuel Bundle, *American Nuclear Society 2016 Winter Meeting and Technology Expo*, Nevada, 2016. (refereed)

30. N. Goth, M. Childs, P. Jones, S. Lee, **T. D. Nguyen**, R. Vaghetto, Y. A. Hassan, Pressure Measurements in a Wire-Wrapped 61-Pin Hexagonal Fuel Bundle, *American Nuclear Society 2016 Winter Meeting and Technology Expo*, Nevada, 2016. (refereed)

31. S. R. Yang, M. Silberberg, C. Fullerton, **T. D. Nguyen**, R. Vaghetto, Y. Hassan, Experimental study on a simplified facility of HTGR reactor building response to depressurization accidental scenarios, *Int. Topical Meeting on High Temperature Reactor Technology (HTR2016), ANS Winter Meeting*, Nevada, 2016. (refereed)

32. N. Goth, M. Childs, P. Jones, S. Lee, **T. D. Nguyen**, R. Vaghetto, Y.A. Hassan, Velocity and pressure measurements in a wire-wrapped 61-pin hexagonal fuel bundle, *The 11th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements*, Italy, 2016. (refereed)

33. **T. D. Nguyen**, V. Petrov, A. Manera, A separate-effect test facility for CFD-grade measurements of the RCCS upper plenum, *International Topical Meeting on Nuclear Reactor Thermal Hydraulics - NURETH-16*, Chicago, 2015. (refereed)

34. V. Petrov, **T. D. Nguyen**, A. Manera, D. Nunez, High resolution experiments of velocity and concentration fluctuations in a jet flow, *International Topical Meeting on Nuclear Reactor Thermal Hydraulics - NURETH-16*, Chicago, 2015. (refereed)

35. **T. D. Nguyen**, V. Petrov, A. Manera, Design of a scaled experimental facility for the NGNP Reactor Cavity Cooling System, *American Nuclear Society 2014 Winter Meeting and Technology Expo*, Anaheim, California, 2014. (refereed)

36. **T. D. Nguyen**, S. Harmand, Heat and mass transfers from a rotating cylinder with a spanwise disk at low-velocity crossflows, *Proceedings of ASME 2013 Fluids Engineering Division Summer Meeting FEDSM2013*, Nevada, USA, 2013. **(refereed)**

37. **T. D. Nguyen**, B. Latour, S. Harmand, Flowfield around a rotating cylinder with a spanwise disk in air crossflow, *The 9th EuroMech Fluid Mechanics Conference (EFMC9)*, Rome, Italy, 2012. **(refereed)**

38. J. Pellé, **T. D. Nguyen**, S. Harmand, Mass and heat transfer inside the air gap of a discoidal and unshrouded rotor-stator system with a jet impingement, *Proceedings of ASME 2012 Summer Heat Transfer Conference HT2012*, Rio Grande, Puerto Rico, 2012. **(refereed)**

39. **T. D. Nguyen**, J. Pellé, S. Harmand, S. Poncet, PIV measurements of an air jet impinging on an open rotor-stator system at low gap spacing, *The 64th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Baltimore, Maryland, USA, November 20-22, 2011. **(refereed)**

40. **T. D. Nguyen**, T. X. Dinh, J. C. Wells, P. Mokhasi, D. Rempfer, POD-based estimations of the flowfield from free-surface velocity in the backward-facing step flow, *Proc. of The Seventh Int. Symp. on Turbulence and Shear Flow Phenomena (TSFP7)*, Ottawa, Canada, July, 2011. **(refereed)**

41. **T. D. Nguyen**, T. M. N. Phan, J. C. Wells, P. Mokhasi, D. Rempfer, Prediction of the flowfield from free-surface measurements by POD-based estimation techniques, *Proc. of the 8th Int. Symp. on Ecohydraulics*, COEX, Seoul, Korea, September 12-16, 2010. **(refereed)**

42. **T. D. Nguyen**, J. C. Wells, P. Mokhasi, D. Rempfer, POD-based estimations of the flowfield from wall gradient measurements in the backward-facing step flow, *Proc. of the 3rd US-European Fluids Engineering Summer Meeting and the 8th International Conference on Nanochannels, Microchannels, Minichannels*, Montreal, Canada, August 1-5, 2010. **(refereed)**

43. **T. D. Nguyen**, J. C. Wells, Near-wall measurement by stereo interfacial particle image velocimetry, *Proc. of the 14th Int. Symp. of Flow Visualization ISFV14*, EXCO, Daegu, Korea, June 21-24, 2010. **(refereed)**

44. **T. D. Nguyen**, J. C. Wells, C. V. Nguyen, Wall Shear Measurement Of Near-wall Flows Over Inclined and Curved Boundaries by Stereo-Interfacial PIV, *The 62nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Minneapolis, USA, November 22-24, 2009.

45. **T. D. Nguyen**, J. C. Wells, C. V. Nguyen, Wall Shear Stress Measurement of Near-Wall Flow over Inclined and Curved Boundaries, *Proc. of The Sixth Int. Symp. on Turbulence and Shear Flow Phenomena (TSFP6)*, Seoul, Korea, June 22-24, 2009. **(refereed)**

46. C. V. Nguyen, **T. D. Nguyen**, J. C. Wells, A. Nakayama, Interfacial PIV: Velocity Interpolation Near Curved Wall, *Proc. of the 13th Int. Symp. of Flow Visualization ISFV13, The 12th French Congress on Visualization in Fluid Mechanics FLUVISU12*, Nice, France, July 1-4, 2008. **(refereed)**

47. C. V. Nguyen, **T. D. Nguyen**, J. C. Wells, A. Nakayama, Proposals for PIV of Near-Wall Flow over Curved Boundaries, *Proc. of 14th Int. Symp. on Applications of Laser Techniques to Fluid Mechanics*, Lisbon, Portugal, 07-10 July, 2008. **(refereed)**

48. N. C. H. Le, R. Yokokawa, D. V. Dao, **T. D. Nguyen**, J. C. Wells, S. Sugiyama, Integration of Evanescent Excitation (EE)-based Chip with Microfluidic Channels for Upright and Inverted Microscope Observations, *Proc. of 12th Int. Conf. on Miniaturized Systems for Chemistry and Life Sciences* (MicroTAS 2008), pp. 1603-1605, San Diego, CA, USA, Oct. 12-16, 2008. **(refereed)**

49. R. Yokokawa, N. C. H. Le, **T. D. Nguyen**, D. V. Dao, J. C. Wells, S. Sugiyama, Development and Application of Total Internal Reflection (TIR)-based Chip Based on MEMS Technology, *Proc. of the 2008 Int. Symp. on Micro/Nano Systems Technology* (2008 ISMST), pp. 149-154 , Hanoi, Vietnam, Dec. 18-21, 2008.

50. N. C. H. Le, R. Yokokawa, D. V. Dao, **T. D. Nguyen**, J. C. Wells, S. Sugiyama, Measurement Near-wall Velocity Fields of Fluorescent Nanoparticles Transported in Microchannel Utilizing Integrated Evanescent Excitation (EE)-based Chip, *Book of abstract of 17th Society for Chemistry and Micro Nano Systems* (CHEMINAS 17th), pp. 75, Kyushu, Japan, May. 20-21, 2008. **(refereed)**

51. **T. D. Nguyen**, J. C. Wells, C. V. Nguyen, Investigating the Sensitivity of PIV Interface Gradiometry to Estimated Wall and Boundary Detection in Experimental

Images, *Proc. of The 2nd Int. Symp. on Advanced Fluid/Solid Science and Technology in Experimental Mechanics 2nd ISEM Osaka*, 2007. **(refereed)**

52. N. C. H. Le, R. Yokokawa, D. V. Dao, **T. D. Nguyen**, J. C. Wells, S. Sugiyama, Application of an Integrated Microfluidic Total Internal Reflection (TIR)-based Chip to Nano-Particle Image Velocimetry (nano-PIV), *Technical Digest of 6th IEEE Int'l Conference on Sensors* (IEEE SENSORS 2007), pp. 454-457, Atlanta, Georgia, USA, Oct. 28-31, 2007.