NOTRE DAME UNIVERSITY
LOUAIZE
جامعة سيدة اللويزة
GAUDIUM DE VERITATE

Charbel Bou-Mosleh, Ph.D.
Professor and Chairperson
Department of Mechanical Engineering
O: FE 1.10
T: 09 218 950, Ext. 2032
E: cboumosleh@ndu.edu.lb

Biography

Charbel Bou-Mosleh is a Professor and the chairperson of the Mechanical Engineering Department. He received his Ph.D. in Aerospace Engineering Sciences from the University of Colorado, Boulder, USA, in 2005. He then joined Stanford University, USA as a postdoctoral scholar in the Mechanical Engineering Department and then as an Engineering Research Associate in the Aeronautics and Astronautics Department. He also served as a consulting Assistant Professor during the academic year 2009-2010 and later a visiting Assistant Professor in the Aeronautics and Astronautics Department at Stanford University, USA in the summers of 2010 and 2011 and a visiting scholar in the summers of 2012, 2013, 2014, 2016, 2019, and 2022. He is the author of several journal and conference publications. His research interests are in computational mechanics, reduced-order modeling, fluid-structure interactions, mesh generation, modeling and simulation and renewable energy. He is currently teaching courses in the areas of Fluid Mechanics, Thermodynamics and Aerodynamics. Charbel is an active member of the ASME, was previously the chair of the Student Section Enterprise Group and is currently serving on the Nominating Committee. Charbel is also a technical reviewer of several refereed journals in the field of computational mechanics and renewable energy.

Peer-reviewed Journals

- S. Grimberg, C. Farhat, R. Tezaur and C. Bou-Mosleh, "Mesh Sampling and Weighting for the Hyperreduction of Nonlinear Petrov-Galerkin Reduced-Order Models with Local Reduced-Order Bases", International Journal for Numerical Methods in Engineering, Vol. 122, Issue 7, pp. 1846-1874 (2021). doi: 10.1002/nme.6603. Top cited IJNME papers (2021-2022).
- R. Himo, C. Bou-Mosleh and C. Habchi, "Aerodynamic Performance Enhancement of an Airfoil using Trapezoidal Vortex Generators", Aircraft Engineering and Aerospace Technology, accepted for publication, September 17, 2020.
- G. Boncoraglio, C. Farhat, and C. Bou-Mosleh, "Model Reduction Framework with a New Take on Active Subspaces for Optimization Problems with Linearized Fluid-Structure Interaction Constraints", International Journal for Numerical Methods in Engineering, Vol. 122, pp. 5450–5481 (2021). doi: 10.1002/nme.6376.
- C. Ghnatios, G. Asmar, E. Chakar and C. Bou Mosleh, "A reduced-order model manifold technique for automated structural defects judging using the PGD with analytical validation", Comptes Rendus Mécanique, Vol. 347, Issue 2, pp. 101-113 (2019). doi: j.crme.2018.11.003.
- E. Karam, P. Moukarzel, M. Chamoun, C. Habchi and C. Bou-Mosleh "Design of a Hybrid Photovoltaic Thermal System in Lebanon", MATEC Web Conf., Vol. 171 (2018) 02002. doi: 10.1051/matecconf/201817102002.
- S. Ghanimeh, C. Abou Khalil, C. Bou-Mosleh, and Charbel Habchi, "Anaerobic-Aerobic Sequential System for the Treatment of Food Waste and Wastewater", Waste Management, Vol. 71, pp. 767-774 (2018). doi: 10.1016/j.wasman.2017.06.027.
- J. Matar, J. Youssef, P. Rahme and C. Bou-Mosleh. "A Nearshore Heaving-Buoy Sea Wave Energy Converter For Power Production", Procedia Engineering, Vol. 145, pp. 136-143 (2016). doi:10.1016/j.proceng.2016.04.032.

- W. Chehaze, D. Chamoun, C. Bou-Mosleh and P. Rahme. "Wave Roller Device for Power Generation", Procedia Engineering, Vol. 145, pp. 144-150 (2016). doi:10.1016/j.proceng.2016.04.033.
- K. Carlberg, C. Bou-Mosleh and C. Farhat, "Efficient Nonlinear Model Reduction via a Least-Squares Petrov-Galerkin Projection and Compressive Tensor Approximations", International Journal For Numerical Methods in Engineering, Vol. 86, No.2, pp. 155-181 (2011). doi: 10.1002/nme.3050. Top ten most cited IJNME papers of 2011.
- C. Bou-Mosleh and C. Farhat, "A Stress-Based Optimization Method for Reproducing In-Flight Loads Using Concentrated Forces", AIAA Journal, Vol. 46, pp. 1273-1277 (2008). doi:10.2514/1.28668.

Peer-reviewed Conference Proceedings

- C. Khairallah, E. Eid, P. Rahme and C. Bou-Mosleh, "Development of a Wave Buoy Device For Energy Harvesting: Renewable Energy", Proceedings of the 3rd International Conference on Advances in Computational Tools for Engineering Applications – ACTEA 2019, Notre Dame University-Louaize, Zouk Mosbeh, Lebanon, July 3-4, (2019). doi: 10.1109/ACTEA.2019.8851089.
- C. Bou-Mosleh, R. Himo and C. Habchi, "CFD-Based Aerodynamic Analysis of the Flow Past an Airfoil With Passive Trapezoidal and Perforated Vortex Generators", Proceedings of ASME 2018 International Mechanical Engineering Congress & Exposition, Pittsburgh, Pennsylvania, USA, November 11-14, (2018). doi:10.1115/IMECE2018-87440.
- G. Salame, E. Frem, E. Albona, C. Bou-Mosleh and P. Rahme, "A Point-Absorber-Based Wave Energy Converter for Power Production in Lebanon : Renewable Energy", Proceedings of the International Conference on Renewable Energies for Developing Countries – REDEC 2018, Beirut, Lebanon, November 1-2, (2018). doi:10.1109/REDEC.2018.8598003.
- Y. Aoun, M. Kadi and C. Bou-Mosleh, "Thermal Foundation Benefits and Efficiency", Proceedings of ASME 2017 International Mechanical Engineering Congress & Exposition, Tampa, Florida, USA, November 3-9, (2017). doi:10.1115/IMECE2017-71359.
- E. Karam, P. Moukarzel, M. Chamoun, C. Habchi and C. Bou-Mosleh, "Design of a Hybrid Photovoltaic Thermal System in Lebanon", Proceedings of the First International Conference on Energy, Power, Petroleum and Petrochemical Engineering – E3PE 2017, Faculty of Engineering – Lebanese University, Beirut, Lebanon, April 26-28, (2017).
- E. Jabagi, G. Chibani, C. Abou Khalil, C. Bou-Mosleh and S. Ghanimeh. "Treatability and Energy Potential of Waste in Anaerobic-Aerobic Sequential Systems", Procedings of the 6th International Symposium on Energy from Biomass and Waste – VENICE 2016, Great School of St. John the Evangelist, Venice, Italy, November 14-17, (2016).
- C. Khairallah, E. Eid, P. Rahme and C. Bou-Mosleh. "Analysis of a wave roller energy-harvesting device", Proceedings of the 3rd International Conference on Advances in Computational Tools for Engineering Applications – ACTEA 2016, pp. 32-36, Notre Dame University-Louaize, Zouk Mosbeh, Lebanon, July13-15, (2016). doi: 10.1109/ACTEA.2016.7560107.
- J. Matar, J. Youssef, P. Rahme and C. Bou-Mosleh. "Towards Clean Power Production Using Wave Energy", Proceedings of the 21st LAAS International Scientific Conference, pp. 432-433, Beirut, Lebanon, April 15-17, (2015).
- W. Chehade, D. Chamoun, C. Bou-Mosleh and P. Rahme. "Wind-waves hybrid system concept for power generation", Proceedings of the 21st LAAS International Scientific Conference, pp. 882-883, Beirut, Lebanon, April 15-17, (2015).
- C. Bou-Mosleh, P. Rahme, P. Beaino, R. Mattar and E. Abi Nassif, "Contribution to Clean Energy Production Using a Novel Waver Energy Converter", Proceedings of the International Conference on Renewable Energies for Developing Countries – REDEC 2014, pp. 108-111, Beirut, Lebanon, November 26-27, (2014). doi:10.1109/REDEC.2014.7038540.
- C. Bou-Mosleh and S. Patel, "CFD-Based Aerodynamic Analysis of Damaged Delta Wings", Proceedings of ASME 2014 International Mechanical Engineering Congress & Exposition, Montreal, Canada, November 14-20, (2014). doi:10.1115/IMECE2014-38420.
- P. Rahme, C. Bou-Mosleh, G. Asmar and F. Lachaud. "Numerical model for composite material laminates with ply drop in compression", 20th LAAS International Scientific Conference, Hadath, Lebanon, March 27-29, (2014).
- D. Amsallem, C. Bou-Mosleh and C. Farhat, "Nonlinear Model Reduction Unsing Local Reduced-Order Bases", 7th International Congress on Industrial and Applied Mathematics – ICIAM 2011, Vancouver, BC, Canada, July 18-22 (2011).
- C. Bou-Mosleh, "CFD-Based Aerodynamic Analysis of a Battle-Induced Damaged F-16 Wing", International Conference on Advanced Research and Applications in Mechanical Engineering, Notre Dame University-Louaize, Lebanon, June 13-15, (2011).
- K. Carlberg, D. Amsallem, J. Cortial, C. Bou-Mosleh, and C. Farhat, ''Efficient Model Reduction of Large-Scale Nonlinear Systems in Fluid Dynamics,'' 2011 SIAM Conference on Computational Science and Engineering, Reno, NV, February 28–March 4 (2011).

- A. Rajasekharan, C. Farhat and C. Bou-Mosleh, "Application of a Dynamic Variational Multiscale Method to the LES of Separated Turbulent Flows," AIAA Paper 2007-0726, 45th Aerospace Science Meeting and Exhibit Conference, Reno, Nevada, January 8-11 (2007).
- J. G. Michopoulos, C. Farhat and C. Bou-Mosleh, "On Data-Driven Modeling and Simulation of Aero-Thermo-Mechanically Degrading Nonlinear Continuum Systems," Proceedings of the ASME 2006 Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Philadelphia, PA, September 10-13 (2006).
- C. Bou-Mosleh, C. Farhat and K. Maute, "A Stress-Control-Based Live-Fire Ground Testing Methodology," AIAA Paper 2004-1540, 45th AIAA/ASME/ASCE/AHS/ASC Structural Dynamics and Materials Conference, Palm Springs, California, April 19-22 (2004).

Plenary Lectures

- F. Keyrouz and C. Bou-Mosleh, "A unified platform for simplifying the design of wind and solar installations in three different geographic regions in Lebanon", Grant Problem for Scientific Research in Lebanon, National Council for Scientific Research – CNRS, 36,000,000 L.L. (2017-2019).
- D. Amsallem, C. Bou-Mosleh, P. Avery, Y. Choi and C. Farhat. "Adjoint-Based PDE-Constrained Robust Optimization of Aircraft Systems Using Reduced-Order Models", Model Reduction of Parametrized Systems (MoRePas 2015), SISSA, International School for Advanced Studies, main campus, Trieste, Italy, October 13-16, (2015).

Poster Presentation

- K. Washabaugh, M. Zahr, C. Bou-Mosleh and C. Farhat, Modeling of Ahmed Body with Variable Geometry, Army High Performance Computing Research Center Summer Meeting, Stanford, California (2014).
- C. Bou-Mosleh and C. Farhat, "CFD-Based Aeroelastic Analysis of the Toyota TF 105 Formula One Car", Aeronautics and Astronautics Department, Stanford University, Stanford, California, (2011).
- D. Amsallem, C. Bou-Mosleh, K. Carlberg and C. Farhat, "CFD-Based Reduced-Order Modeling for the Aerodynamic Design of a Formula One Car", Aeronautics and Astronautics Department, Stanford University, Stanford, California, (2011).

Research Grants

- F. Keyrouz and C. Bou-Mosleh, "A unified platform for simplifying the design of wind and solar installations in three different geographic regions in Lebanon", Grant Problem for Scientific Research in Lebanon, National Council for Scientific Research – CNRS, 36,000,000 L.L. (2017-2019).
- P. Rahme, M. Hayek, C. Bou-Mosleh, I. Tawk and H. Rishmany, "Development of a Hybrid System Using Wave and Wind to Produce Clean Energy", Grant Problem for Scientific Research in Lebanon, National Council for Scientific Research – CNRS, 32,000,000 L.L. (2014-2016).

Exhibitions, Competitions and Creative Work

- ASME's Outstanding Student Section Advisor Award, Winner, 2021.
- Winner of the LIRA Competition for Industry Oriented Projects, 2016, Ministry of Industry, Lebanon. Best project and best advisor. Project title: Generation of Clean Energy through Improved Co-Digestion of Food Waste and Wastewater.

Esteemed Indicators

- Member, ASME Nominating Committee (June 2021-present).
- ASME Student Section Enterprise Committee Chair (2019-2022).
- ASME Engineering Festival Regional Lead, Middle East and Africa (August 2016-present).
- ASME Student Section Coordinator, Middle East and Africa, (July 2014-2022).

CV

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