

Niema M Pahlevan, PhD

Assistant Professor of Aerospace & Mechanical Engineering
Viterbi School of Engineering
Assistant Professor of Medicine, Division of Cardiovascular Medicine
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Curriculum Vitae

Research Interests

- Biofluid Dynamics
- Minimally Invasive Technologies in Medicine
- Modeling Physiological and Biological Systems
- Time-Frequency Analysis
- Physics of Fluids in Cardiovascular and Cerebrovascular Diseases
- Physics-Based Machine Learning in Medicine
- Noninvasive Diagnostic Methods
- Cardiovascular MRI
- Hemodynamic Monitoring

Education

- **PhD, Bioengineering, 2007 – 2013 (*Best Thesis Defense Presentation Award*)**
California Institute of Technology, Pasadena, CA
Thesis title: “A Systems Approach to Cardiovascular Health and Disease with a Focus on Aortic Wave Dynamics”
- **M.S, Mechanical Engineering, 2005-2007 (*With Distinction*)**
California State University, Northridge, CA
Thesis title: “A State-space Analysis during Pedaling of Optimized Ergometric Bicycle”
- **B.S., Mechanical Engineering, 1996-2001**
University of Tehran, Tehran, Iran

Academic Employment

- **Assistant Professor of Aerospace & Mechanical Engineering, 01/2017-Present**
University of Southern California, Los Angeles, CA
- **Assistant Professor of Medicine, Division of Cardiovascular Medicine, 08/2017-Present**
University of Southern California, Los Angeles, CA
- **James Boswell Postdoctoral Scholar, 05/2014–12/2016**
California Institute of Technology, Pasadena, CA
- **Clinical Research Investigator, 05/2014- 12/2016**
Huntington Medical Research Institute (HMRI), Pasadena, CA
- **Postdoctoral Scholar, Medical Engineering, 06/2013 – 04/2014**
California Institute of Technology, Pasadena, CA

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Honors and Awards

- National Science Foundation (NSF) CAREER Award, 2022
- USC Viterbi Junior Research Award, 2022
- American Heart Association (AHA) *Career Development Award*, 2020
- American Heart Association (AHA) *Postdoctoral Fellowship*, 2014
- James Boswell Postdoctoral Fellowship Award (Huntington Medical Research Institute-Caltech), 2014
- *The Hans G. Hornung Prize* (best PhD thesis defense presentation award), GALCIT, California Institute of Technology, 2013
- American Heart Association (AHA) *Predoctoral Fellowship*, 2012
- Travel stipend award for the 7th Hypertension Summer School AHA, 2010
- *Distinguished Graduate Student of the Year*, Mechanical Engineering Department, California State University Northridge, 2007
- Boeing Annual Scholarship Award, 2006
- Certificate of Recognition “*Master Tutor: A Guide for More Effecting Tutoring Program*”, College of Engineering and Computer Science, California State University Northridge, 2006

Peer-Reviewed Journal Publications

Students and research associates (postdocs, fellows, residents) from my lab are underlined

36. Aghilinejad A, Wei H, Magee G, and **Pahlevan NM**. (2022) “Model-Based Fluid-Structure Interaction Approach for Evaluation of Thoracic Endovascular Aortic Repair Endograft Length in Type B Aortic Dissection”. *Frontiers in Bioengineering and Biotechnology*, **Accepted**.
35. Wei H, Herrington C, Cleveland J, Starnes V, and **Pahlevan NM**. (2021) “Hemodynamically Efficient Artificial Right Atrium Design for Univentricular Heart Patients”. *Physical Review Fluids*, 6(12), 123103. <https://doi.org/10.1103/PhysRevFluids.6.123103>
34. Aghilinejad A, Alavi R, Rogers B, Amlani F, and **Pahlevan NM**. (2021) “Effects of Vessel Wall Mechanics on Non-Invasive Evaluation of Cardiovascular Intrinsic Frequencies”. *Journal of Biomechanics*, 129:110852. <https://doi.org/10.1016/j.jbiomech.2021.110852>
33. Aghilinejad A, Amlani F, Liu J, and **Pahlevan NM**. (2021). “Accuracy And Applicability of Non-Invasive Evaluation of Aortic Wave Intensity Using Only Pressure Waveforms in Humans”. *Physiological Measurement*, 42(10), 105003. <https://doi.org/10.1088/1361-6579/ac2671>
32. Alavi R, Dai W, Amlani F, Rinderknecht DG, Kloner RA, and **Pahlevan NM**. (2021). “Scalability of Cardiovascular Intrinsic Frequencies: Validations in Preclinical Models and Non-Invasive Clinical Studies”. *Life Sciences*, 284: 119880. <https://doi.org/10.1016/j.lfs.2021.119880>
31. Liu J and **Pahlevan NM**. (2021) “The Underlying Mechanism of Inter-Site Discrepancies in Ejection Time Measurements from Arterial Waveforms and Its Validation in The Framingham Heart Study”. *American Journal of Physiology-Heart and Circulatory Physiology*, 21(1): H135-H148. <https://doi.org/10.1152/ajpheart.00096.2021>

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30. Iskander A, [Bilgi C](#), Naftalovich R, Hacihaliloglu I, Berkman T, Naftalovich D, and **Pahlevan NM**. (2021) “The Rheology of the Carotid Sinus: A path toward bioinspired intervention”. *Frontiers in Bioengineering and Biotechnology*, 9: 439.
<https://doi.org/10.3389/fbioe.2021.678048>
29. Cooper LL, Rong J, **Pahlevan NM**, Rinderknecht DG, Benjamin EJ, Hamburg NM, Ramachandran VS, Larson MG, Gharib M, and Mitchell GF. (2021) “Intrinsic Frequencies of Carotid Pressure Waveforms Predict Heart Failure Events: the Framingham Heart Study”. *Hypertension*, 77:338–346. (*Selected as a High Impact Paper by the editors*)
<https://doi.org/10.1161/HYPERTENSIONAHA.120.15632>
28. Iskander A, Naftalovich R, and **Pahlevan NM**. (2020) “The Carotid Sinus as a Viscometer.” *Diagnostics* 10(11):924.
<https://doi.org/10.3390/diagnostics10110924>
27. [Mogadam E](#), Shavelle DM, Giesler, GM., Economides C, Pierre LS, Duquette S, Matthews RV, **Pahlevan NM**. (2020) “Intrinsic Frequency Method for Instantaneous Assessment of Left Ventricular-Arterial Coupling After Transcatheter Aortic Valve Replacement”. *Physiological Measurement*, 41(8): 085002.
<https://doi.org/10.1088/1361-6579/aba67f>
26. [Wei H](#), Cheng AL, and **Pahlevan NM**. (2020) “On the Significance of Blood Flow Shear-rate-dependency in Modeling of Fontan Hemodynamics”. *European Journal of Mechanics-B/Fluids*, 84:1-14.
<https://doi.org/10.1016/j.euromechflu.2020.05.011>
25. [Aghilinejad A](#), [Amlani F](#), King KS, and **Pahlevan NM**. (2020) “Dynamic Effects of Aortic Arch Stiffening on Pulsatile Energy Transmission to Cerebral Vasculature as A Determinant of Brain-Heart Coupling”. *Scientific Reports*, 10(1): 1-12.
<https://www.nature.com/articles/s41598-020-65616-7>
24. **Pahlevan NM**, Yao T, Chu K, [Cole S](#), Tran T, Wood JC, and King KS. (2020) “Group Delay Method for MRI Aortic Pulse Wave Velocity Measurements in Clinical Protocols with Low Temporal Resolution: Validation in A Heterogeneous Cohort”. *Magnetic Resonance Imaging*, 69: 8-15.
<https://doi.org/10.1016/j.mri.2020.02.013>
23. **Pahlevan NM** and Mazandarani SP. (2020) “Accuracy of Wave Condition Number from Pressure Waveform Alone and Its Changes with Advancing Age in Healthy Women and Men”. *Frontiers in Physiology*, 11: 313.
<https://doi.org/10.3389/fphys.2020.00313>
22. Rinderknecht DG, de Balasy JM, and **Pahlevan NM**. (2020) “A Wireless Optical Handheld Device for Carotid Waveform Measurement and Its Validation in a Clinical Study”. *Physiological Measurement*, 41(5):055008.
<https://doi.org/10.1088/1361-6579/ab7b3f>
21. [Miller J](#), Shepherd J, Rinderknecht DG, Cheng AL, and **Pahlevan NM**. (2020) “Proof-Of-Concept For A Non-invasive, Portable, and Wireless Device for Cardiovascular Monitoring in Pediatric Patients”. *PLoS ONE*, 15(1): e0227145.
<https://doi.org/10.1371/journal.pone.0227145>
20. [Amlani F](#) and **Pahlevan NM**. (2020) “A Stable High-Order FC-Based Methodology for Hemodynamic Wave Propagation”. *Journal of Computational Physics*, 405, p.109130.
<https://doi.org/10.1016/j.jcp.2019.109130>

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19. [Kang J](#), [Aghilinejad A](#), and **Pahlevan NM**. (2019) “On the Accuracy of Displacement-Based Wave Intensity Analysis: Effect of Vessel Wall Viscoelasticity And Nonlinearity. *PLOS ONE*. 14:e0224390. <https://doi.org/10.1371/journal.pone.0224390>
18. Cheng AL, Wee CP, **Pahlevan NM**, and Wood JC. (2019) “A 4D Flow MRI Evaluation of the Impact of Shear-Dependent Fluid Viscosity on in vitro Fontan Circulation Flow”. *American Journal of Physiology-Heart and Circulatory Physiology*. 317(6), H1243-H1253. <https://doi.org/10.1152/ajpheart.00296.2019>
17. **Pahlevan NM** and Matthews RV. (2019) “Cardiac Triangle Mapping: A New Systems Approach for Noninvasive Evaluation of Left Ventricular End Diastolic Pressure. *Fluids*. 4(1):16. <https://doi.org/10.3390/fluids4010016>
16. Armenian SH, Rinderknecht DG, Au K, Lindenfeld L, Mills G, Siyahian A, Herrera C, Wilson K, Venkataraman K, Mascarenhas K, Tavallali P, Razavi M, **Pahlevan NM**, Detterich J, Bhatia S, Gharib M. (2018) “Accuracy of a Novel Handheld Wireless Platform for Detection of Cardiac Dysfunction in Anthracycline-Exposed Survivors of Childhood Cancer”. *Clinical Cancer Research*. 24 (13): 3119-3125. <https://doi.org/10.1158/1078-0432.CCR-17-3599>
15. Tavallali P, Razavi M, and **Pahlevan NM**. (2018) “Artificial Intelligence Estimation of Carotid-Femoral Pulse Wave Velocity Using Carotid Waveform.” *Scientific Reports*. 8(1), 1014. (**Editor’s choice article**) <https://www.nature.com/articles/s41598-018-19457-0>
14. Cheng AL, **Pahlevan NM**, Rinderknecht DG, Wood JC, and Gharib M (2018). “Experimental investigation of the effect of non-Newtonian behavior of blood flow in the Fontan circulation”. *European Journal of Mechanics-B/Fluids*. 68:184-192. <https://doi.org/10.1016/j.euromechflu.2017.12.009>
13. **Pahlevan NM**, Rinderknecht DG, Tavallali P, Razavi, M., Tran TT, Fong M, Kloner RA, Csete M, and M Gharib (2017). “Noninvasive iPhone Measurement of Left Ventricular Ejection Fraction Using Intrinsic Frequency Methodology”. *Critical Care Medicine*, 45(7): 1115-1120. (**Editor’s selected feature article in July 2017 issue**) <https://doi.org/10.1097/CCM.0000000000002459>
12. Tavallali P, Hou TY, Rinderknecht DG, and **Pahlevan NM**. (2015) “On the Convergence and Accuracy of the Cardiovascular Intrinsic Frequency Method”. *Royal Society Open Science*. 2(12): p.150475. <https://doi.org/10.1098/rsos.150475>
11. Petrasek D, **Pahlevan NM**, Tavallali P, Rinderknecht DG, and M Gharib. (2015) “Intrinsic Frequency and the Single Wave Biopsy: Implications for Insulin Resistance”. *Journal of Diabetes Science and Technology*. 9(6):1246-1252. <https://doi.org/10.1177/1932296815588108>
10. Falahatpisheh A, **Pahlevan NM**, and A Kheradvar (2015) “Effect of the Mitral Valve’s Anterior Leaflet on Axisymmetry of Transmitral Vortex Ring”. *Annals of Biomedical Engineering*. 43:2349-2360. <https://doi.org/10.1007/s10439-015-1302-y>
9. **Pahlevan NM**, Tavallali P, Rinderknecht DG, Petrasek D, Matthews R, Hou TY, and M Gharib (2014). “Intrinsic Frequency as a Systems Approach to Hemodynamic Waveform Analysis with Clinical Applications”. *Journal of the Royal Society Interface*. 11(98): 20140617. <https://doi.org/10.1098/rsif.2014.0617>

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8. **Pahlevan NM** and M Gharib. (2014) "A Wave Dynamics Criterion for Optimization of Mammalian Cardiovascular System". *Journal of Biomechanics*. 47(7): 1727-1732.
<https://doi.org/10.1016/j.jbiomech.2014.02.014>
7. **Pahlevan NM** and M Gharib. (2014) "A Bio-Inspired Approach for the Reduction of Left Ventricular Workload". *PLoS ONE* 9(1): e87122.
<https://doi.org/10.1371/journal.pone.0087122>
6. **Pahlevan NM** and M Gharib. (2014) "Pathological Wave Dynamics: A Postulate for Sudden Cardiac Death in the Athletes". *Medical Hypotheses*. 82(1): 64–70.
<https://doi.org/10.1016/j.mehy.2013.11.007>
5. **Pahlevan NM** and M Gharib. (2013) "In-Vitro Investigation of a Potential Wave Pumping Effect in Human Aorta". *Journal of Biomechanics*. 46(13): 2122–2129.
<https://doi.org/10.1016/j.jbiomech.2013.07.006>
4. **Pahlevan NM** and M Gharib. (2011) "Aortic Wave Dynamics and Its Influence on Left Ventricular Workload". *PLoS ONE* 6(8): e23106.
<https://doi.org/10.1371/journal.pone.0023106>
3. **Pahlevan NM** and M Gharib. (2011) "Low Pulse Pressure with High Pulsatile External Left Ventricular Power: Influence of Aortic Waves". *Journal of Biomechanics*. 44(11): 2083–2089.
<https://doi.org/10.1016/j.jbiomech.2011.05.016>
2. **Pahlevan NM**, Amlani F, Gorji H, Hussain F, and M Gharib. (2011) "A Physiologically Relevant, Simple Outflow Boundary Model for Truncated Vasculature", *Annals of Biomedical Engineering*. 39(5): 1470-1481.
<https://doi.org/10.1007/s10439-011-0246-0>
1. Lin BA, Forouhar AS, **Pahlevan NM**, Anastassiou CA, Grayburn PA, Thomas JD, and M Gharib. (2010) "Color Doppler Jet Area Overestimates Regurgitant Volume when Multiple Jets are Present." *Journal of the American Society of Echocardiography*. 23(9):993-1000.
<https://doi.org/10.1016/j.echo.2010.06.011>

Book Chapter

1. **Pahlevan NM**. (2019) "Bernoulli's equation, significance, and limitations". *Principles of Heart Valve Engineering*. (pp. 381-388). Academic Press
<https://doi.org/10.1016/C2017-0-00983-7>

Peer-Reviewed Conference Proceedings

Students and research associates (postdocs, fellows, residents) from my lab are underlined

19. Alavi R, Dai W, Kloner RA, and **Pahlevan NM**. (2021) "A Physics-Based Machine Learning Approach for Instantaneous Classification of Myocardial Infarct Size". *Circulation*. 144: A12098- A12098.
https://www.ahajournals.org/doi/10.1161/circ.144.suppl_1.12098
18. Liu J and **Pahlevan NM**. (2021) "Evaluation of a Non-invasive Left Ventricular Pressure-volume Loop Approximation Method Based on Arterial Blood Pressure Values and Cardiac MRI". *Circulation*. 144: A14056- A14056.

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https://www.ahajournals.org/doi/10.1161/circ.144.suppl_1.14056

17. [Alavi R](#), Dai W, Arechavala RJ, Kleinman MT, Kloner RA, and **Pahlevan NM**. (2021) “Nicotine Delivered by Electronic Cigarette Vapor or Standard Cigarettes Adversely Affects Left Ventricular Systolic Function Measured by Cardiovascular Intrinsic Frequency in Rats”. *Circulation*. 144: A13745-A13745.
https://www.ahajournals.org/doi/10.1161/circ.144.suppl_1.13745
16. [Alavi R](#), [Liu J](#), Ramos M, Hindoyan A, Matthews RV, and **Pahlevan NM**. (2021) “A Hybrid Machine Learning Method for Instantaneous Classification of Left Ventricular Filling Pressure Using Femoral Waveforms”. *Circulation*. 144: A14086- A14086.
https://www.ahajournals.org/doi/10.1161/circ.144.suppl_1.14086
15. [Mogadam E](#), Shavelle D, [Liu J](#), Giesler G, Matthews RV, and **Pahlevan NM**. (2020) “Validation of A Non-invasive Approach for The Assessment of Left Ventricular-arterial Coupling Following Transcatheter Aortic Valve Replacement”. *Circulation*, 142, A16138-A16138.
https://www.ahajournals.org/doi/10.1161/circ.142.suppl_3.16138
14. [Alavi R](#), Dai W, RA Kloner, and **Pahlevan NM**. (2020) “A Hybrid Artificial Intelligence-Intrinsic Frequency Method for Instantaneous Determination of Myocardial Infarct Size”. *Circulation*, 142, A15899-A15899.
https://www.ahajournals.org/doi/10.1161/circ.142.suppl_3.15899
13. **Pahlevan NM**, [Alavi R](#), Ramos M, Hindoyan A, and RV Matthews. (2020) “An Artificial Intelligence Derived Method For Instantaneous Detection Of Elevated Left Ventricular End Diastolic Pressure”. *Circulation*, 142, A16334-A16334.
https://www.ahajournals.org/doi/10.1161/circ.142.suppl_3.16334
12. Gonser M, **Pahlevan NM**, and M Gharib. (2020). Optimisation Criterion for Pulsatile Timing: Observation in The Human Fetus. *Ultrasound in Obstetrics and Gynecology*, 56(S1), 197-198
<https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/uog.22839>
11. [Alavi R](#), Dai W, Kloner RA, and **Pahlevan NM**. (2019) “A Hybrid Artificial Intelligence-Intrinsic Frequency Method for Instantaneous Detection of Acute Myocardial Infarction”. *Circulation*, 140(1), A12573-A12573.
https://www.ahajournals.org/doi/10.1161/circ.140.suppl_1.12573
10. Cooper LL, Rong J, **Pahlevan NM**, Rinderknecht DG, Benjamin EJ, Hamburg NM, Ramachandran VS, Larson MG, Gharib M, and Mitchell GF. (2019) “Intrinsic Frequencies of Carotid Pressure Waveforms Predict Cardiovascular Disease Events: The Framingham Heart Study”. *Circulation*, 140(1), A14748-A14748.
https://www.ahajournals.org/doi/10.1161/circ.140.suppl_1.14748
9. [Mogadam E](#), Giesler G, Matthews RV, and **Pahlevan NM**. (2019) “A New Method for Instantaneous and Noninvasive Evaluation of Left Ventricular-Arterial Performance Following Transcatheter Aortic Valve Replacement”. *Circulation*, 140(1), A15284-A15284.
https://www.ahajournals.org/doi/10.1161/circ.140.suppl_1.15284
8. Cheng AL, **Pahlevan NM**, and Wood JC. (2018) “Non-newtonian behavior significantly affects hemodynamic efficiency in a four-dimensional flow magnetic resonance Fontan model”. *Journal of the American College of Cardiology*. 71(11S): A622-A622.
<https://www.jacc.org/doi/full/10.1016/s0735-1097%2818%2931163-x>

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7. **Pahlevan NM**, Dai W, and RA Kloner. (2018). "Noninvasive and Instantaneous Diagnostics of Acute Myocardial Infarction Using Intrinsic Frequency Method". *Circulation*, 138(1), A15311-A1531. https://www.ahajournals.org/doi/10.1161/circ.138.suppl_1.15311
6. **Pahlevan NM**, Ramos M, and RV Matthews. (2018). "A Systems Approach for Noninvasive and Instantaneous Measurement of Left Ventricular End Diastolic Pressure Using Smartphone". *Circulation*, 138(1), A16274-A16274. https://www.ahajournals.org/doi/10.1161/circ.138.suppl_1.16274
5. **Pahlevan NM**. (2018). "MRI-based Measures of Left Ventricle Contractility and Intrinsic Frequency". *Proceedings of 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*.
4. Razavi, M. and **NM Pahlevan**. (2017) "Wave Condition Number Is Useful in Predicting Risk for Coronary Heart Disease from Framingham Heart Study Data". *Circulation*. 136: A19399-A19399. https://www.ahajournals.org/doi/10.1161/circ.136.suppl_1.19399
3. **Pahlevan NM**, Rinderknecht DG, Tavallali P, Razavi, M., Tran TT, Fong M, Kloner RA, Csete M, and M Gharib. (2016) "A New Noninvasive iPhone Application to Monitor Left Ventricle Ejection Fraction in Heart Failure Patients". *Circulation*. 134: A17227. https://www.ahajournals.org/doi/10.1161/circ.134.suppl_1.17227
2. **Pahlevan NM**, Petrasek D, Rinderknecht DG, Tavallali P, and M Gharib . (2014). "Calculating Pulse Wave Velocity from a Single Pressure Waveform Using the Intrinsic Frequency Method". *Hypertension*. 64.Suppl 1: A355-A355 https://www.ahajournals.org/doi/10.1161/hyp.64.suppl_1.355
1. **Pahlevan NM**, and M Gharib. (2010) " Pulse Pressure as a Single Index May not Represent the Level of Left Ventricle Work Load: Influence of Aortic Wave Dynamics". *Hypertension*. 56(5): E79-E79.

PatentsIssued Patents (US)

9. Rinderknecht DG, **Pahlevan NM**, Tavallali P, and M Gharib. "Portable electronic hemodynamic sensor systems" (US10918291B2). (*licensed to industry*)
8. **Pahlevan NM**, Tavallali P, Rinderknecht DG, and M Gharib. "Intrinsic frequency analysis for left ventricle ejection fraction or stroke volume determination" (US9480406B2). (*licensed to industry*)
7. **Pahlevan NM** and M. Gharib. "Noninvasive Systems for Blood Pressure Measurement in Arteries" (US9622666 B2) (*licensed to industry*)
6. **Pahlevan NM**, Tavallali P, Hou TY, and M Gharib. "Intrinsic Frequency Hemodynamic Waveform Analysis" (US9026193B2). (*licensed to industry*)
5. Gharib M and **Pahlevan NM**. "Correction and Optimization of Wave Reflection in Blood Vessels". (US9125655B2)

Issued Patents (Internationals)

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4. **Pahlevan NM**, Tavallali P, Rinderknecht DG, and Gharib M. “Intrinsic frequency analysis for left ventricle ejection fraction or stroke volume determination”. *China* (CN105764412B), *European Patent Office* (EP3057498B1),
3. Rinderknecht DG, **Pahlevan NM**, Tavallali P, and M Gharib. “Portable electronic hemodynamic sensor systems” *China* (CN105916439B)
2. **Pahlevan NM**, Tavallali P, Hou TY, and Gharib M. “Intrinsic Frequency Hemodynamic Waveform Analysis”. *Singapore* (SG11201403291VA), *Mexico* (MX354979B), *Japan* (JP6162143B2),
1. Gharib M and **Pahlevan NM**. “Noninvasive systems for aortic aneurysm evaluation”. *China* (CN104619244B)

Conference Presentations

Presenter underlined. For the sections below, an asterisk (*) denotes student or postdocs advised by me.

35. Bilgi C*, Wei H*, Rizzi N, Sampson A, Mallaby M, and **Pahlevan NM**. (2021) “Vortex interactions and fluid mixing in the brain: targeted drug delivery for intraventricular hemorrhage patients”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
34. Pahlevan NM, Amlani F*, King K, Aghilinejad A*. (2021) “The Effects of Left Ventricle Contractility on Aortic-Brain Hemodynamic Coupling”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
33. Alavi R*, Aghilinejad A*, Wei H*, Niroumandi S*, Wieman S, and **Pahlevan NM**. (2021) “In-vitro coupled left atrioventricular-aortic hemodynamic simulator for systemic circulation”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
32. Amlani F*, and **Pahlevan NM**. (2021) “A novel Fourier-based (pseudo) spectral framework for 1D hemodynamics and wave propagation in the entire human circulatory system”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
31. Niroumandi S*, Alavi R*, and **Pahlevan NM**. (2021) “A machine learning methodology for estimation of vascular characteristics using a single carotid waveform”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
30. Wei H*, Gilpin M, and **Pahlevan NM**. (2021) “High speed transient laminar flow meter”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
29. Aghilinejad A*, Wei H*, Magee G, and **Pahlevan NM**. (2021) “Hemodynamically-efficient graft design for endovascular repair in type B aortic dissection”. *American Physical Society-Division of Fluid Dynamics (APS-DFD), 74th Annual Meeting, Phoenix, Arizona*
28. Alavi R*, Dai W, RA Kloner, and **Pahlevan NM**. (2021) “A Physics-Based Machine Learning Approach for Instantaneous Classification of Myocardial Infarct Size”. *American Heart Association's Scientific Sessions, Virtual, November 2021*
27. Alavi R*, Liu J*, Ramos M, Hindoyan A, Matthews RV, and **Pahlevan NM**. (2021) “A Hybrid Machine Learning Method for Instantaneous Classification of Left Ventricular Filling Pressure Using Femoral Waveforms”. *American Heart Association's Scientific Sessions, Virtual, November 2021*

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26. Liu J* and **Pahlevan NM**. (2021) "Evaluation Of A Non-invasive Left Ventricular Pressure-volume Loop Approximation Method Based On Arterial Blood Pressure Values And Cardiac MRI". *American Heart Association's Scientific Sessions*, Virtual, November 2021
25. Alavi R*, Dai W, Arechavala RJ, Kleinman MT, RA Kloner, and **Pahlevan NM**. (2021) "Nicotine Delivered by Electronic Cigarette Vapor or Standard Cigarettes Adversely Affects Left Ventricular Systolic Function Measured by Cardiovascular Intrinsic Frequency in Rats". *American Heart Association's Scientific Sessions*, Virtual, November 2021
24. Alavi R*, Dai W, RA Kloner, and **Pahlevan NM**. (2020) "A Hybrid Artificial Intelligence-Intrinsic Frequency Method for Instantaneous Determination of Myocardial Infarct Size". *American Heart Association's Scientific Sessions*, Virtual, November 2020
23. Mogadam E*, Shavelle D, Liu J, Giesler G, Matthews RV, **Pahlevan NM**. (2020) "Validation Of A Non-invasive Approach For The Assessment of Left Ventricular-arterial Coupling Following Transcatheter Aortic Valve Replacement". *American Heart Association's Scientific Sessions*, Virtual, November 2020
22. **Pahlevan NM**, Alavi R*, Ramos M, Hindoyan A, and RV Matthews. (2020) "An Artificial Intelligence Derived Method For Instantaneous Detection Of Elevated Left Ventricular End Diastolic Pressure". *American Heart Association's Scientific Sessions*, Virtual, November 2020
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