

Asst. Prof. MESUDE AVCI

Personal Information

Email: mesude@cumhuriyet.edu.tr

Web: <https://avesis.cumhuriyet.edu.tr/mesude>

International Researcher IDs

ORCID: 0000-0001-8211-7779

Publons / Web Of Science ResearcherID: AAA-7503-2020

ScopusID: 55004097700

Yoksis Researcher ID: 293762

Education Information

Doctorate, University of Oklahoma, United States Of America 2010 - 2015

Postgraduate, Rice University, United States Of America 2008 - 2010

Undergraduate, Inonu University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, Turkey 2002 - 2006

Dissertations

Doctorate, Computational Investigation of Turbulent Blood Flow and Hemolysis in Biomedical Devices, University Of Oklahoma, 2015

Postgraduate, Modeling Vapor-Liquid-Solid Phase Behavior in Natural Gas Systems, Rice University, 2010

Research Areas

Biomedical Engineering, Chemical Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Sivas Cumhuriyet University, Mühendislik Fakültesi, Kimya Mühendisliği, 2019 - Continues

Lecturer, Sivas Cumhuriyet University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2018 - 2019

Courses

Kim. Müh. Lab. - I, Undergraduate, 2019 - 2020

Kimyasal Teknoloji Laboratuvarı, Undergraduate, 2019 - 2020

Malzeme, Undergraduate, 2019 - 2020

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Hemolysis estimation in turbulent flow for the FDA critical path initiative centrifugal blood pump**
AVCI M., Heck M., O'Rear E. A., Papavassiliou D. V.

- BIOMECHANICS AND MODELING IN MECHANOBILOGY, vol.20, no.5, pp.1709-1722, 2021 (SCI-Expanded)
- II. Modeling natural gas-carbon dioxide system for solid-liquid-vapor phase behavior**
AVCI M., Panuganti S. R., Gong K., Cox K. R., Vargas F. M., Chapman W. G.
Journal of Natural Gas Science and Engineering, vol.45, pp.738-746, 2017 (SCI-Expanded)
- III. An Approach for Assessing Turbulent Flow Damage to Blood in Medical Devices**
AVCI M., Papavassiliou D. V., O'Rear E. A.
Journal of Biomechanical Engineering, vol.139, no.1, 2017 (SCI-Expanded)
- IV. Hemolysis Related to Turbulent Eddy Size Distributions Using Comparisons of Experiments to Computations**
AVCI M., O'Rear E. A., Papavassiliou D. V.
Artificial Organs, vol.39, no.12, 2015 (SCI-Expanded)
- V. Hemodynamics of the renal artery ostia with implications for their structural development and efficiency of flow**
Mcintosh W. H., AVCI M., Down L. A., Papavassiliou D. V., O'Rear E. A.
Biorheology, vol.52, no.4, pp.257-268, 2015 (SCI-Expanded)
- VI. Studies of methyldiethanolamine process simulation and parameters optimization for high-sulfur gas sweetening**
Qiu K., Shang J., AVCI M., Li T., Chen S., Zhang L., Gu X.
Journal of Natural Gas Science and Engineering, vol.21, pp.379-385, 2014 (SCI-Expanded)
- VII. A simulation study on the impact of operating conditions on desulphurisation selectivity in high-sulphur gas sweetening**
Qiu K., Zhu L., Bagajewicz M., Kim S. Y., AVCI M.
International Journal of Oil, Gas and Coal Technology, vol.6, no.3, pp.348-366, 2013 (SCI-Expanded)

Articles Published in Other Journals

- I. Sublethal Damage to Erythrocytes during Blood Flow**
AVCI M., O'rear E. A., Foster K. M., Papavassiliou D. V.
Fluids, vol.7, no.2, 2022 (ESCI)
- II. Reynolds stresses and hemolysis in turbulent flow examined by threshold analysis**
AVCI M., O'Rear E. A., Papavassiliou D. V.
Fluids, vol.1, no.4, 2016 (Scopus)

Books & Book Chapters

- I. Metabolomics in Biomarker Identification for Cardiovascular Diseases**
AVCI M.
in: Metabolomics and Clinical Approach, Daştan, Sevgi Durna; Daştan, Taner, Editor, Nova science publisher, pp.297-308, 2023
- II. Computational Modeling of Epigenetics**
AVCI M.
in: Epigenetics: Beyond the Genetics, Daştan, Sevgi Durna; Yurtcu, Nazan, Editor, Nova Science Publishers, New York, pp.95-104, 2022

Refereed Congress / Symposium Publications in Proceedings

- I. MODELING BLOOD FLOW FOR VARYING DEGREES OF STENOSIS IN VESSELS BY USING COMPUTATIONAL FLUID DYNAMICS (CFD)**

- Saraçoğlu Kaya B., Avcı M.
2nd International Congress On Food Researches, ICONFOOD'23, Sivas, Turkey, 16 - 18 October 2023, pp.314-319
- II. **Investigation of Von Willebrand factor and Thrombosis in Medical Devices by using Computational Fluid Dynamics**
ÖZTÜRK M.
1. Uluslararası Malatya Uygulamalı Bilimler Kongresi, 20 - 22 December 2019, vol.2
- III. **Validation of a New Computational Fluid Dynamics Model to Predict Turbulent Flow Damage for the US FDA Critical Path Initiative Centrifugal Blood Pump**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Institute of Chemical Engineers (AIChE), Orlando, FL, United States Of America, 10 - 15 November 2019
- IV. **A Computational Fluid Dynamics Model to Predict Turbulent Flow Damage For The US FDA Critical Path Initiative Centrifugal Blood Pump**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
31st Annual Cardiologist Conference, Roma, Italy, 17 - 19 September 2019, vol.8
- V. **A Computational Fluid Dynamics Model to Predict Turbulent Flow Damage in Medical Devices**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Institute of Chemical Engineers (AIChE), San-Francisco, Costa Rica, 13 - 18 November 2016
- VI. **Effects of Turbulent Eddies on Hemolysis in a Centrifugal Blood Pump**
ÖZTÜRK M., O'Rear E. A., HECK M., JAMES M. E., Papavassiliou D. V.
The Biomedical Engineering Society (BMES), Minneapolis, MN, United States Of America, 5 - 08 October 2016
- VII. **An Empirical Model To Estimate Blood Damage In Turbulent Flow In Medical Devices**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Society for Artificial Internal Organs (ASAIO), San-Francisco, Costa Rica, 15 - 18 June 2016
- VIII. **Effect of Reynolds and viscous stress, and Kolmogorov length scale on hemolysis**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Institute of Chemical Engineers (AIChE), Salt Lake City, UT, United States Of America, 8 - 13 November 2015
- IX. **Effect of Reynolds Stresses on Hemolysis**
ÖZTÜRK M., Snyder T., O'Rear E. A., Papavassiliou D. V.
The American Society for Artificial Internal Organs (ASAIO), Chicago, IL, United States Of America, 24 - 27 June 2015
- X. **Applicability of Reynolds, Total, Viscous and Wall Shear Stresses in Different Power Law Models.**
ÖZTÜRK M., Snyder T., O'Rear E. A., Papavassiliou D. V.
The American Society for Artificial Internal Organs (ASAIO), Chicago, IL, United States Of America, 24 - 27 June 2015
- XI. **Eddy Analysis for Hemolysis in Turbulent Flows**
O'Rear E. A., ÖZTÜRK M., Papavassiliou D. V.
The International Congress of Biorheology - International Conference on Clinical Hemorheology (ISB-ISCH), Seoul, South Korea, 24 May - 28 June 2015
- XII. **Turbulence effects on hemolysis by revisiting experiments with LES computations**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Physical Society (APS), Boston, MA, United States Of America, 2 - 06 March 2015
- XIII. **Relationship between Turbulent Quantities and Hemolysis**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Institute of Chemical Engineers (AIChE), Atlanta, GA, United States Of America, 16 - 21 November 2014
- XIV. **Turbulent eddy properties from CFD and hemolysis re-examined**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The Biomedical Engineering Society (BMES), San-Antonio, Northern Mariana Islands, 22 - 25 October 2014
- XV. **Effects of Turbulent Eddy Structures on Hemolysis**

- ÖZTÜRK M., Schmidtke D., Snyder T., O'Rear E. A., Papavassiliou D. V.
The American Society for Artificial Internal Organs (ASAIO), Washington, Kiribati, 18 - 21 June 2014
- XVI. **Hemolysis in Turbulent Flow**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Chemical Society Annual Pentasectional Meeting (ACS), Stillwater, OK, United States Of America, 12 - 13 April 2014
- XVII. **Simulation of Turbulence Effects on Red Blood Cell Trauma**
ÖZTÜRK M., O'Rear E. A., Papavassiliou D. V.
The American Institute of Chemical Engineers (AIChE), San-Francisco, Costa Rica, 3 - 08 November 2013
- XVIII. **Gas Pipeline Leak Detection Using Rigorous Hydraulics and Global Optimization.**
ÖZTÜRK M., Kim S. Y., Bagajewicz M.
The American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, United States Of America, 28 October - 02 November 2012
- XIX. **New Approach to Gas Hydraulics Calculations**
ÖZTÜRK M., Hacıoğlu L., Bagajewicz M.
The American Institute of Chemical Engineers (AIChE), Pittsburgh, PA, United States Of America, 28 October - 02 November 2012

Supported Projects

- Avcı M., DAŞTAN T., Other International Funding Programs, Emerging Approaches in Epigenetics, 2022 - 2023
Avcı M., Project Supported by Higher Education Institutions, Santrifüjlü Kalp Pompasında Hemoliz Hesaplanması, 2019 - 2020

Metrics

- Publication: 30
Citation (WoS): 82
Citation (Scopus): 107
H-Index (WoS): 5
H-Index (Scopus): 6

Non Academic Experience

- İlçe Milli Eğitim Müdürlüğü
The University of Oklahoma
The University of Oklahoma