

Davit Aslanyan

PHD STUDENT · ELECTRICAL ENGINEERING

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Education

University of Southern California

PHD, ELECTRICAL ENGINEERING

• Advisor: Dr. Constantine Sideris

Los Angeles, CA

2021 - 2026

University of Southern California

MS, ELECTRICAL ENGINEERING

Los Angeles, CA

2021 - 2024

Yerevan State University

BA, PHYSICS

Yerevan, Armenia

2016 - 2020

Professional Experience

01/2022 -

current

Research Assistant, Dept. of Electrical and Computer Engineering, University of Southern California

07/2018 -

01/2021

Research Assistant, Cosmic Ray Division, Yerevan Physics Institute

Professional Service & Scientific Outreach

2025 **Reviewer**, IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting

2025 **Reviewer**, IEEE Transactions on Antennas and Propagation

2025 **Reviewer**, IEEE Open Journal of Antennas and Propagation

Publications

ACCEPTED

Sideris C., **Aslanyan D.**, Bruno OP. *High order-accurate solution of scattering integral equations with unbounded solutions at corners.* Journal of Computational Physics (2025), doi: <https://doi.org/10.1016/j.jcp.2025.114213>

Chilingarian, A., Sargsyan, B., **Aslanyan D.**, Kozliner, L. (2025). *Wind-induced Natural Gamma Radiation.* Europhysics Letters in press <https://doi.org/10.1209/0295-5075/ade562>

PUBLISHED

Chilingarian, A., Sargsyan, B., Karapetyan, T., **Aslanyan D.**, Chilingaryan, S., Kozliner, L., Khanikyanc, Y. (2024). *Extreme thunderstorm ground enhancements registered on Aragats in 2023.* Phys. Rev. D, 110, 063043.

DOI: 10.1103/PhysRevD.110.063043

Chilingarian, A., Karapetyan, T., Sargsyan, B., **Aslanyan D.**, Chilingaryan, S. (2024). *Dataset on extreme thunderstorm ground enhancements registered on Aragats in 2023.* Data in Brief, Volume 54, 110554, ISSN 2352-3409.

DOI: 10.1016/j.dib.2024.110554

Chilingarian, A., Hovsepyan, G., Sargsyan, B., Karapetyan, T., **Aslanyan D.**, Kozliner, L. (2024). *Enormous impulsive enhancement of particle fluxes observed on Aragats on May 23, 2023.* Advances in Space Research, Volume 74, Issue 9.

DOI: 10.1016/j.asr.2024.02.041

- Chilingarian, A., Hovsepyan, G., **Aslanyan D.**, Karapetyan, T., Sargsyan, B., Zazyan, M. (2023). *TGE electron energy spectra: Comment on “radar diagnosis of the thundercloud electron accelerator” by E. Williams et al. (2022)*. Journal of Geophysical Research: Atmospheres, 128, e2022JD037309. DOI: 10.1029/2022JD037309
- Chilingarian, A., Hovsepyan, G., **Aslanyan D.**, Karapetyan, T., Sargsyan, B., Svechnikova, E. (2023). *Thunderstorm ground enhancements observed on Aragats mountain in Armenia in the wintertime*. Europhysics Letters, 143(5), p.59002. DOI: 10.1209/0295-5075/acf340
- Chilingarian A., Hovsepyan G., Karapetyan T., **Aslanyan D.**, Chilingaryan S., Sargsyan B. (2023). *Genesis of thunderstorm ground enhancements*. Phys. Rev. D 107, 102003. DOI: 10.1103/PhysRevD.107.102003
- Chilingarian A., Hovsepyan G., **Aslanyan D.**, Karapetyan T., Khanikyanc Y., Kozliner L., Pokhsraryan D., Sargsyan B., Soghomonyan S., Chilingaryan S., Zazyan M. (2022). *Thunderstorm ground enhancements: Multivariate analysis of 12 years of observations*. Phys. Rev. D 106, 082004. DOI: 10.1103/PhysRevD.106.082004
- Chilingarian A., Hovsepyan G., **Aslanyan D.**, Sargsyan B., Karapetyan T. (2022). *Catalog of Thunderstorm Ground Enhancements (TGEs) observed at Aragats in 2013- 2021*. Mendeley Data 1. DOI: 10.17632/8gtdbch59z.3
- Chilingarian A., **Aslanyan D.**, Sargsyan B. (2021). *On the origin of particle flux enhancements during winter months at Aragats*. Physics Letters A, Volume 399,127296, ISSN 0375-9601. DOI: 10.1016/j.physleta.2021.127296
- Chilingarian A., Hovsepyan G., Karapetyan T., Karapetyan G., Kozliner L., Mkrtchyan H., **Aslanyan D.**, Sargsyan B. (2020). *Structure of thunderstorm ground enhancements*. Physics Letters D, Volume 101, Issue 12, 122004. DOI: 10.1103/PhysRevD.101.122004
- Mkrtchyan H., Karapetyan G., **Aslanyan D.** (2020). *Atmospheric electric field variations during fair weather and thunderstorms at different altitudes*. Journal of Atmospheric and Solar-Terrestrial Physics, Volume 211, 105452, ISSN 1364-6826. DOI: 10.1016/j.jastp.2020.105452

Awards, Fellowships, & Grants

- 07/2023 **Honorable Mention for the paper “Adaptive Quadrature for the Chebyshev-based Boundary Integral Equation Method” at the Student Paper Competition**, Institute of Electrical and Electronics Engineers, Antennas and Propagation Society
- 01/2021 - 01/2022 **Graduate Research Fellowship**, University of Southern California
- 11/2019 **State Educational Award as Best Bachelors Student in IT**, Government of Armenia

Presentations

CONTRIBUTED TALKS

- Aslanyan D.**, Bruno OP, Sideris C. (2025, May, Orlando, FL, USA). *A High-Order Accurate Combined Field Integral Equation solver for Scattering Problems in Domains with Corners*. 2025 International Applied Computational Electromagnetics Society Symposium (ACES).
- Sideris C., **Aslanyan D.**, Bruno OP, (2024, June, Berlin, Germany). *A High-order Accurate Boundary Integral Solver for Geometries with Edge and Corner Singularities*. The 16th International Conference on Mathematical and Numerical Aspects of Wave Propagation (WAVES 2024). DOI: doi:10.17617/3.MBE4AA
- Aslanyan D.**, Zheng Y., Hu J., Sideris C. (2024, May, Orlando, FL, USA). *Inverse Design of Nanophotonic and Radio-Frequency Devices using Fast Maxwell Solvers*. 2024 International Applied Computational Electromagnetics Society Symposium (ACES).
- Aslanyan D.**, Hu J., Sideris C. (2023, October, Venice, Italy). *Nanophotonic Simulation and Inverse Design using Fast High-order Chebyshev-based Nyström Methods*. 2023 International Conference on Electromagnetics in Advanced Applications (ICEAA). DOI: 10.1109/ICEAA57318.2023.10297746

Aslanyan D., Sideris C. (2023, July, Portland, OR, USA). *Adaptive Quadrature for the Chebyshev-based Boundary Integral Equation Method*. IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting. DOI: 10.1109/USNC-URSI52151.2023.10237560

Aslanyan D., Sideris C. (2023, March, Monterey-Seaside, CA, USA). *p-Adaptive Quadrature for the Chebyshev-based Boundary Integral Equation Method*. 2023 International Applied Computational Electromagnetics Society Symposium (ACES). DOI: 10.23919/ACES57841.2023.10114725

Mkrtchyan H., Williams E., Chilingarian A., Hovakimyan S., **Aslanyan D.** (2019, December, San Francisco, CA, USA). *Electric Field Polarity Asymmetry in the Occurrence of Thunderstorm Ground Enhancements during the End of Storm Oscillation (EOSO)*. American Geophysical Union (AGU) Fall Meeting 2019.

Aslanyan D. (2019, October, Skopje, North Macedonia). *Thunderstorm Ground Enhancement observations in Armenia*. First Physics for Physicists (P4P) Students Conference.

POSTER PRESENTATIONS

Aslanyan D., Chilingarian A., Karapetyan T., Hovsepyan G. (2021, April, online). *Catalog of TGEs observed at Aragats during 2008-2020*. EGU General Assembly 2021, EGU21-1724.

Aslanyan D., Chilingarian A., Mkrtchyan H., Karapetyan G., Mailyan B., Sargsyan B. (2019, December, San Francisco, CA, USA). *Thunderstorm Ground Enhancement (TGE) events observed on Aragats in 2018-2019 years*. American Geophysical Union (AGU) Fall Meeting 2019.

Aslanyan D., Mkrtchyan H., Karapetyan G. (2019, May, Stockholm, Sweden). *Atmospheric electric field variations during fair weather and thunderstorms at different altitudes*. 2nd Statistical Physics of Complex Systems Conference.

Teaching Experience

Spring
2023 **EE578: Computational Electromagnetics for Engineers**, Teaching Assistant

Spring
2025 **EE578: Computational Electromagnetics for Engineers**, Teaching Assistant

Outreach & Professional Development

PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronics Engineers

SERVICE AND OUTREACH

2025-
current **USC Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society - Antennas and Propagation Society - Solid-State Circuits Society Joint Student Chapter**, Vice Chair

2022-2024 **USC Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society - Antennas and Propagation Society - Solid-State Circuits Society Joint Student Chapter**, Secretary

2018-2020 **Yerevan Young Minds Chapter of European Physical Society**, President