

CAITANO L. DA SILVA

Associate Professor of Physics

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EDUCATION

Ph.D. in Electrical Engineering

May/2015

Pennsylvania State University, University Park, PA, USA

Dissertation Title: Numerical Modeling of Leader Discharge Mechanisms
in Lightning, Blue Jets, Gigantic Jets, and Sprites, Advisor: V.P. Pasko

M.S. in Space Geophysics

Feb/2011

National Institute for Space Research (INPE), São José dos Campos, SP, Brazil

Thesis Title: Study of the Sprite Inception Mechanism, Advisor: E.F.T. São Sabbas

B.S. in Physics

Dec/2008

Federal University of Santa Maria (UFSM), Santa Maria, RS, Brazil

EMPLOYMENT HISTORY

Associate Professor of Physics (with Tenure)

Aug/2023 – Present

Department of Physics, New Mexico Tech (NMT)

Assistant Professor of Physics

Jan/2018 – Jul/2023

Department of Physics, New Mexico Tech

Postdoctoral Fellow

Sep/2015 – Dec/2017

Department of Physics & Astronomy, Dartmouth College

Research Assistant

Jun/2011 – Aug/2015

Department of Electrical Engineering, Pennsylvania State University

TEACHING EXPERIENCE

Courses taught at New Mexico Tech, Department of Physics

PHYS 5035 – Physics of Lightning

PHYS 5010 – (Graduate) Electromagnetism

PHYS 4027 – Atmospheric Physics

PHYS 4028 – Climate Physics

PHYS 3021 – Intermediate Mechanics

PHYS 3033 – Electricity & Magnetism

PHYS 1320 – Calculus-Based Physics II

PHYS 5005 – Advanced Dynamics

Courses taught at Dartmouth College, Department of Physics & Astronomy

PHYS 68 – Introduction to Plasma Physics

ADVISING & MENTORING EXPERIENCE: SUMMARY

Students

◆ PhD degrees awarded at NMT (2): Luis Contreras-Vidal (2026) and Jacob Wemhoner (2026)

◆ MS degrees awarded at NMT (2): Emma Stover (2025) and Alex Attanasio (2021)

◆ Currently: 2 PhD students (J. Pantuso and L. Sahd). Previously: 6 undergrad students at NMT

◆ Previously: Co-mentored 2 undergrads at Dartmouth (w/ R. Millan) and 2 at Penn State (w/ V. Pasko)

AWARDS & HONORS

NMT's Distinguished Teaching Award	May/2025
AGU Atmospheric and Space Electricity Early Career Award	Dec/2024
NSF CAREER Award	Aug/2021
NSF New Mexico EPSCoR Mentor Award	Aug/2021
International Radio Science Union (URSI) Young Scientist Award	Sep/2020
Inaugural Society of Fellows Class, Postdoctoral Fellowship, Dartmouth College	Sep/2015
Penn State EE Melvin P. Bloom Memorial Outstanding Doctoral Research Award	Apr/2015
COSPAR Outstanding Paper Award for Young Scientists	Aug/2014
Penn State Electrical Engineering A. J. Ferraro Graduate Research Award	Apr/2014
AGU Outstanding Student Paper Award (OSPA)	Dec/2013
Honorable Mention in the AGU OSPA Competition	Dec/2012
ALAGE Roberto Manzano Prize at IX COLAGE	Apr/2011

PROFESSIONAL MEMBERSHIP AND SERVICE

Member of	American Geophysical Union (AGU), <i>Life Member</i>
American Physical Society (APS)	Latin American Association of Space Geophysics (ALAGE)
Convener and Chair of	2019 – Present
<i>Physics of Streamers, Leaders, and the Lightning Discharge</i> session at the yearly AGU Fall Meeting	
Reviewer for	
National Science Foundation Proposals	European Research Council Proposals
Nature Communications	Journal of Geophysical Research – Atmospheres
Geophysical Research Letters	Journal of Geophysical Research – Space Physics
Surveys in Geophysics	Journal of Atmospheric and Solar-Terrestrial Physics
Plasma Sources Science and Technology	Physical Review E
AGU Outstanding Student Paper Award	Science Advances

PUBLICATIONS & CONFERENCE PRESENTATIONS: SUMMARY

◆ **38** articles published ◆ **30** in AGU journals ◆ **15** authored by student advisees
◆ **932** citations ◆ h-index of **17** in Google Scholar as of May 21, 2026
◆ **120+** abstracts in conference proceedings ◆ **50+** at AGU Fall Meetings ◆ **23** invited talks

GRANTS & PROJECTS: SUMMARY

◆ \$1.7M+ USD raised for research projects at NMT. Main projects are:
◆ NSF: Advanced Spectrally-Resolved Plasma Diagnostics of Lightning (AGS-2512899)
◆ NSF CAREER: Self-consistent and Data-constrained Simulations of the Leader and Return Stroke Processes in Lightning Discharges (AGS-2046043)
◆ NSF: Unraveling the Runaway Electron Distribution Emitted by Lightning and Laboratory Discharges (AGS-1917069)