
EDUCATION

UNIVERSITY OF CALIFORNIA AT BERKELEY Ph.D. in Mechanical Engineering <i>Dissertation:</i> Flame Structure and Soot Formation in Inverse Diffusion Flames <i>Major:</i> Combustion. <i>Minors:</i> Fluid Mechanics and Air Quality <i>Advisor:</i> Professor A.C. Fernandez-Pello	DEC 2005
UNIVERSITY OF CALIFORNIA AT BERKELEY M.S. in Mechanical Engineering	MAY 2004
SAN FRANCISCO STATE UNIVERSITY California Teaching Credential for Physics and Mathematics, <i>U.S. Peace Corps Fellow</i>	APR 1997
BOSTON UNIVERSITY B.S. in Mechanical Engineering, <i>Cum Laude</i>	MAY 1993

PROFESSIONAL EXPERIENCE

DIRECTOR OF SOLAR ENERGY ASSESSMENT <u>DNV, Oakland, CA</u> Lead a team of 10 solar energy analysts evaluating over 500 utility scale & distributed generation projects totaling over 50-GW, generating over \$5M. Meet with developers, off-takers, investors, engineering, procurement, & construction companies, create & execute roadmaps to reduce P50 bias & increase confidence.	2023 – PRESENT
TEAM LEAD OF SPECIAL PROJECTS FOR SOLAR ENERGY ASSESSMENT <u>DNV GL, Oakland CA</u> Evaluate PV system performance and uncertainty for developers and investors. Create Python libraries to develop, standardize, and accelerate new analyses like solar + storage. Collaborate with national labs and industry partners on methods to evaluate new technology like terrain, bifacial, and hourly modeling corrections.	2021 – PRESENT
PRODUCT MANAGER & MODELING SPECIALIST FOR SOLARFARMER <u>DNV GL, Oakland CA</u> Lead product development of disruptive PV-system energy performance software delivering accurate energy assessment coupled with 3-D layout for optimization on any terrain. Implement and validate algorithms.	2017 – 2021
SENIOR STAFF RELIABILITY/PERFORMANCE ENGINEER <u>SunPower Corp., Richmond CA</u> Develop models to predict energy and degradation of PV systems, research irradiance, cell, module and inverter performance.	2010 – 2017
SENIOR RESEARCHER, MODELING & PERFORMANCE <u>AREVA Solar (formerly Ausra), Mountain View CA</u> Developed and validated dynamic multi-physics models for design and operation of direct steam solar thermal power system. Modeled solar thermal concentrating optics, heat losses, two-phase thermodynamics and fluid mechanics, and thermal storage systems. Analyzed performance tests.	2007 – 2010

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APPLICATIONS ENGINEER, HARDWARE

1999 – 2000

Pinnacle Technologies, San Francisco, CA

Modified, assembled and repaired tiltmeter hardware for real-time monitoring of secondary recovery operations and subsidence in oilfields, as well as for detection of earthquake, landslide and volcanic activity. Developed prototypes and conducted testing for tiltmeter hardware development.

RESEARCH EXPERIENCE

POST-DOCTORAL RESEARCHER

2006

University of California at Berkeley, Combustion Processes Laboratory

Researched fluidized catalytic nano-particle reactor for environmentally clean power generation.

GRADUATE STUDENT RESEARCHER

2000 – 2005

University of California at Berkeley, Microgravity Combustion Laboratory

Conducted experiments on and simulations of methane and ethylene inverse diffusion flames in normal-gravity and micro-gravity to study the formation of soot and carbon monoxide in underventilated fires. Mapped temperature with thermocouples. Sampled and analyzed CO and soot emissions. Measured radiant emission with radiometer. Used laser diagnostics to obtain species profiles. Project sponsored by NASA in collaboration with NIST and Sandia National Laboratory.

TEACHING EXPERIENCE

PHYSICS TEACHER

2006 – 2007

Lighthouse Community Charter High School, Oakland, CA

Started science department at new high school serving inner city students of mostly Hispanic background. Developed physics curriculum using expeditionary learning and standards based models.

GRADUATE STUDENT INSTRUCTOR

2002 – 2004

University of California at Berkeley, Department of Mechanical Engineering

Conducted discussions for undergraduate thermodynamics and heat transfer courses and corrected exams. Led laboratory section for undergraduate combustion course and corrected exams

ADJUNCT INSTRUCTOR

2004

University of California at Berkeley, Student Learning Center

Developed and taught lessons for undergraduate calculus adjunct course, corrected and graded exams.

MATH, PHYSICS, & GENERAL SCIENCE TEACHER

1997-1999

McAteer High School, S.F.U.S.D., San Francisco, CA

Created lessons meeting district standards and appealing to at-risk youth. Served as treasurer for Staff Development Committee.

MATH & PHYSICS TEACHER

1994 – 1996

United States Peace Corps/Tanzania (East Africa)

Taught high school math and physics to second language learners in English and Swahili. Organized health education for students and teachers. Led two successful student trips to summit Mt. Kilimanjaro.

DATA & DIGITAL

LANGUAGES: Python, MATLAB, C/C++, C#, Java, FORTRAN, HTML, CSS, JS, SQL

PLATFORMS: Linux, Windows, Mac OS X, AWS, Azure, Heroku, PostgreSQL, MySQL, MSSQL, Git, Jupyter

OPEN SOURCE: [pvlb](#) (maintainer), [scipy](#), SunPower [pvmismatch](#), NREL [rdtools](#), [bifacialvf](#)

PUBLICATIONS & CONFERENCE PRESENTATIONS

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PUBLICATIONS

- Jensen A.R., Anderson K.S., Holmgren W.F., Mikofski M.A., Hansen C.W., Boeman L.J., Loonen R., “**pvlb iotools—Open-source Python functions for seamless access to solar irradiance data,**” (2023) Solar Energy, 266, DOI: [10.1016/j.solener.2023.112092](#).
- Deceglie M.G., Anderson K., Fregosi D., Hobbs W.B., Mikofski M.A., Theristis M., Meyers B.E., “**Perspective: Performance Loss Rate in Photovoltaic Systems,**” (2023) Solar RRL, 7 (15), DOI: [10.1002/solr.202300196](#).
- Anderson et al., (2023). “**pvlb python: 2023 project update.**” Journal of Open Source Software, 8(92), 5994, DOI: [10.21105/joss.05994](#).
- M. A. Mikofski, W. F. Holmgren, J. Newmiller and R. Kharait, “**Effects of Solar Resource Sampling Rate and Averaging Interval on Hourly Modeling Errors,**” in *IEEE Journal of Photovoltaics*, vol. 13, no. 2, pp. 202-207, March 2023, DOI: [10.1109/JPHOTOV.2023.3238512](#).
- M. Leung et al., “**Tracker Terrain Loss Part Two,**” in *IEEE Journal of Photovoltaics*, vol. 12, no. 1, pp. 127-132, Jan. 2022, DOI: [10.1109/JPHOTOV.2021.3114599](#).
- G. M. Wilson *et al.*, “**The 2020 photovoltaic technologies roadmap,**” *J. Phys. D: Appl. Phys.*, vol. 53, no. 49, 2020. “Ch. 10: Energy Yield Modeling” with M. Deceglie and J. Freeman, DOI: [10.1088/1361-6463/ab9c6a](#)
- K. Anderson and M. A. Mikofski, “**Slope-Aware Backtracking for Single-Axis Trackers,**” *National Renewable Energy Laboratory (NREL) Report*, NREL/TP-5K00-76626, Jul. 2020, DOI: [10.2172/1660126](#).
- W. F. Holmgren, C. W. Hansen, and M. A. Mikofski, “**pvlb python: a python package for modeling solar energy systems,**” *J. Open Source Softw.*, vol. 3, no. 29, p. 884, Sep. 2018, DOI: [10.21105/joss.00884](#)
- M. A. Mikofski, T. C. Williams, C. R. Shaddix, and L. G. Blevins, “**Flame height measurement of laminar inverse diffusion flames,**” *Combust. Flame*, vol. 146, no. 1–2, pp. 63–72, 2006, DOI: [10.1016/j.combustflame.2006.04.006](#)
- M. A. Mikofski, T. C. Williams, C. R. Shaddix, A. C. Fernandez-Pello, and L. G. Blevins, “**Structure of laminar sooting inverse diffusion flames,**” *Combust. Flame*, vol. 149, no. 4, pp. 463–478, Jun. 2007, DOI: [10.1016/j.combustflame.2007.01.006](#)

CONFERENCE PRESENTATIONS & POSTERS

- J. Newmiller, M. Mikofski and W. F. Holmgren, “**Photovoltaic Power Plant Capacity Test Uncertainty,**” 2025 IEEE 53rd Photovoltaic Specialists Conference (PVSC), Montreal, QC, Canada, 2025, pp. 1347-1352, DOI: [10.1109/PVSC59419.2025.11133042](#).
- A. Quattrone, A. Pierce, U. Zandanbal and M. A. Mikofski, “**Validation of a hybrid model combining Townsend and Marion to estimate PV snow soiling losses,**” 2025 IEEE 53rd Photovoltaic Specialists Conference (PVSC), Montreal, QC, Canada, 2025, pp. 1532-1533, DOI: [10.1109/PVSC59419.2025.11133135](#).

- U. Akkoseoglu, W. F. Holmgren, M. Mikofski and J. Newmiller, "**Spectral Correction Variability and Energy Yield Impact for cSi Systems and the Effect of Clouds**," 2025 IEEE 53rd Photovoltaic Specialists Conference (PVSC), Montreal, QC, Canada, 2025, pp. 0836-0840, DOI: [10.1109/PVSC59419.2025.11133250](https://doi.org/10.1109/PVSC59419.2025.11133250).
- K. S. Anderson, C. W. Hansen, W. F. Holmgren, A. R. Jensen, M. A. Mikofski and A. Driesse, "**Pvlib Python: Recent Updates and Community Growth**," 2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC), Seattle, WA, USA, 2024, pp. 1384-1386, DOI: [10.1109/PVSC57443.2024.10749197](https://doi.org/10.1109/PVSC57443.2024.10749197).
- U. Akkoseoglu, W. F. Holmgren, M. Mikofski and I. Tse, "**Spectral Correction Method Comparison Between First Solar Modeling Tool and PVSyst First Solar Spectral Correction Models**," 2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC), Seattle, WA, USA, 2024, pp. 1105-1108, DOI: [10.1109/PVSC57443.2024.10748936](https://doi.org/10.1109/PVSC57443.2024.10748936).
- J. Newmiller, M. Mikofski and W. F. Holmgren, "**Bifacial ASTM2848 Capacity Testing with Outboard Sensors**," 2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC), Seattle, WA, USA, 2024, pp. 0867-0870, DOI: [10.1109/PVSC57443.2024.10749204](https://doi.org/10.1109/PVSC57443.2024.10749204).
- P. N. Krishnani, A. E. Hajj, C. Helms, S. Nagarajan and M. Mikofski, "**Plane of Array Irradiance Cleaning and Generation of Validated POA Readings for Plant Evaluation**," 2023 IEEE 50th Photovoltaic Specialists Conference (PVSC), San Juan, PR, USA, 2023, pp. 1-4, DOI: [10.1109/PVSC48320.2023.10359716](https://doi.org/10.1109/PVSC48320.2023.10359716).
- C. Hayes, A. Parikh, M. Mikofski and R. Kharait, "**Sensitivity of Sub-Hourly Modeling Error to Project Size**," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), Philadelphia, PA, USA, 2022, pp. 0858-0858, DOI: [10.1109/PVSC48317.2022.9938848](https://doi.org/10.1109/PVSC48317.2022.9938848).
- M. A. Mikofski, W. F. Holmgren, J. Newmiller and R. Kharait, "**Effects of Satellite Sampling on Subhourly Modeling Errors**," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), Philadelphia, PA, USA, 2022, pp. 0995-0995, doi: [10.1109/PVSC48317.2022.9938780](https://doi.org/10.1109/PVSC48317.2022.9938780).
- K. S. Anderson, W. B. Hobbs, W. F. Holmgren, K. R. Perry, M. A. Mikofski and R. A. Kharait, "**The Effect of Inverter Loading Ratio on Energy Estimate Bias**," 2022 IEEE 49th Photovoltaics Specialists Conference (PVSC), 2022, pp. 0714-0720, DOI: [10.1109/PVSC48317.2022.9938632](https://doi.org/10.1109/PVSC48317.2022.9938632).
- A. Parikh, K. Perry, K. Anderson, W. B. Hobbs, R. Kharait and M. A. Mikofski, "**Validation of Subhourly Clipping Loss Error Corrections**," 2021 IEEE 48th Photovoltaic Specialists Conference (PVSC), 2021, pp. 1670-1675, DOI: [10.1109/PVSC43889.2021.9518564](https://doi.org/10.1109/PVSC43889.2021.9518564).
- M. A. Mikofski and R. Kharait, "**Comparison of Predicted PV System Performance with SURFRAD versus TMY**," 2021 IEEE 48th Photovoltaic Specialists Conference (PVSC), 2021, pp. 2155-2159, DOI: [10.1109/PVSC43889.2021.9519024](https://doi.org/10.1109/PVSC43889.2021.9519024).
- A. Neubert, M. Hamer, R. A. Kharait and M. A. Mikofski, "**Bifacial Solar Sensitivity to Project Capacity Size**," 2020 47th IEEE Photovoltaic Specialists Conference (PVSC), 2020, pp. 0703-0706, DOI: [10.1109/PVSC45281.2020.9300712](https://doi.org/10.1109/PVSC45281.2020.9300712).
- E. L. Warren *et al.*, "**The value of diversity in the renewable energy industry and research community**," 2020 47th IEEE Photovoltaic Specialists Conference (PVSC), 2020, pp. 0652-0654, DOI: [10.1109/PVSC45281.2020.9300582](https://doi.org/10.1109/PVSC45281.2020.9300582).
- R. Kharait, S. Raju, A. Parikh, M. A. Mikofski and J. Newmiller, "**Energy Yield and Clipping Loss Corrections for Hourly Inputs in Climates with Solar Variability**," 2020 47th IEEE Photovoltaic Specialists Conference (PVSC), 2020, pp. 1330-1334, DOI: [10.1109/PVSC45281.2020.9300911](https://doi.org/10.1109/PVSC45281.2020.9300911).
- M. A. Mikofski and P. J. Rainey, "**Tracker Terrain Losses**," 2020 47th IEEE Photovoltaic Specialists Conference (PVSC), 2020, pp. 1859-1862, DOI: [10.1109/PVSC45281.2020.9300381](https://doi.org/10.1109/PVSC45281.2020.9300381).
- M. A. Mikofski, R. Darawali, M. Hamer, A. Neubert, and J. Newmiller, "**Bifacial Performance Modeling in Large Arrays**," in 2019 IEEE 46th Photovoltaic Specialist Conference (PVSC), 2019, DOI: [10.1109/PVSC40753.2019.8980572](https://doi.org/10.1109/PVSC40753.2019.8980572)

- W. F. Holmgren, C. W. Hansen, J. S. Stein, and M. A. Mikofski, “**Review of Open Source Tools for PV Modeling**,” in *2018 IEEE 7th World Conference on Photovoltaic Energy Conversion (WCPEC) (A Joint Conference of 45th IEEE PVSC, 28th PVSEC & 34th EU PVSEC)*, 2018, pp. 2557–2560, DOI: [10.1109/PVSC.2018.8548231](https://doi.org/10.1109/PVSC.2018.8548231)
- M. A. Mikofski, *et al.*, “**Accurate Performance Predictions of Large PV Systems with Shading using Submodule Mismatch Calculation**,” in *2018 IEEE 7th World Conference on Photovoltaic Energy Conversion (WCPEC) (A Joint Conference of 45th IEEE PVSC, 28th PVSEC & 34th EU PVSEC)*, 2018, pp. 3635–3639, DOI: [10.1109/PVSC.2018.8547323](https://doi.org/10.1109/PVSC.2018.8547323)
- M. A. Mikofski, C. W. Hansen, W. F. Holmgren, and G. M. Kimball, “**Use of measured aerosol optical depth and precipitable water to model clear sky irradiance**,” in *2017 IEEE 44th Photovoltaic Specialist Conference (PVSC)*, 2017, no. July, pp. 110–116, DOI: [10.1109/PVSC.2017.8366314](https://doi.org/10.1109/PVSC.2017.8366314)
- B. Meyers and M. Mikofski, “**Accurate Modeling of Partially Shaded PV Arrays**,” in *2017 IEEE 44th Photovoltaic Specialist Conference (PVSC)*, 2017, pp. 3354–3359, DOI: [10.1109/PVSC.2017.8521559](https://doi.org/10.1109/PVSC.2017.8521559)
- M. Mikofski, A. Oumbe, C. Li, and B. Bourne, “**Evaluation and correction of the impact of spectral variation of irradiance on PV performance**,” in *2016 IEEE 43rd Photovoltaic Specialists Conference (PVSC)*, 2016, pp. 1357–1362, DOI: [10.1109/PVSC.2016.7749837](https://doi.org/10.1109/PVSC.2016.7749837)
- B. Meyers, M. Mikofski, and M. Anderson, “**A fast parameterized model for predicting PV system performance under partial shade conditions**,” in *2016 IEEE 43rd Photovoltaic Specialists Conference (PVSC)*, 2016, pp. 3173–3178, DOI: [10.1109/PVSC.2016.7750251](https://doi.org/10.1109/PVSC.2016.7750251)
- E. Hasselbrink *et al.*, “**Validation of the PVLife model using 3 million module-years of live site data**,” in *2013 IEEE 39th Photovoltaic Specialists Conference (PVSC)*, 2013, pp. 7–12. DOI: [10.1109/PVSC.2013.6744087](https://doi.org/10.1109/PVSC.2013.6744087)
- M. A. Mikofski *et al.*, “**PVLife: An Integrated Model for Predicting PV Performance Degradation over 25+ Years**,” in *2012 38th IEEE Photovoltaic Specialists Conference*, 2012, no. 3, pp. 1744–1749, DOI: [10.1109/PVSC.2012.6317932](https://doi.org/10.1109/PVSC.2012.6317932)
- M. Mikofski *et al.*, “**A Dynamic Cell-By-Cell PV System Model to Predict Lifetime Performance and Reliability**,” in *26th European Photovoltaic Solar Energy Conference and Exhibition*, 2011, pp. 105–112, DOI: [10.4229/26thEUPVSEC2011-1BO.10.1](https://doi.org/10.4229/26thEUPVSEC2011-1BO.10.1)
- K. T. Macko, M. A. Mikofski, A. C. Fernandez-Pello, L. G. Blevins, and R. W. Davis, “**Laser extinction in laminar inverse diffusion flames**,” in *Fall Technical Meeting of the Western States Section of the Combustion Institute 2005, WSS/CI 2005 Fall Meeting*, 2005, vol. 2, <https://escholarship.org/uc/item/5xq8441t>
- M. A. Mikofski, L. G. Blevins, T. C. Williams, and C. R. Shaddix, “**Effect of varied air flow on flame structure of laminar inverse diffusion flames**,” in *30th International Symposium on Combustion, Abstracts of Works-in-Progress Posters*, 2004.
- M. A. Mikofski, T. C. Williams, C. R. Shaddix, and L. G. Blevins, “**Effect of Varied Air Flow on Flame Structure of Laminar Inverse Diffusion Flames**,” in *Western States Section/Combustion Institute 2004 Spring Meeting*, 2004, <https://escholarship.org/uc/item/7fg575cm>
- M. A. Mikofski, L. G. Blevins, R. W. Davis, E. F. Moore, and G. W. Mulholland, “**COSMIC: Carbon Monoxide and Soot in Microgravity Inverse Combustion**,” in *7th International Workshop on Microgravity Combustion and Chemically Reacting Systems*, 2003, <https://escholarship.org/uc/item/7xb9t2gk>
- L. G. Blevins, N. Y. C. Yang, M. A. Mikofski, G. W. Mulholland, and R. W. Davis, “**Alteration of early soot pathways using microgravity**,” in *41st Aerospace Sciences Meeting and Exhibit*, 2003, DOI: [10.2514/6.2003-985](https://doi.org/10.2514/6.2003-985)