Curriculum Vitae

David W. Hahn, PhD
Craig M. Berge Dean – College of Engineering
University of Arizona
Tucson, AZ 85721

Email: dwhahn@arizona.edu
Office: (520) 621-6595

1. Educational Background

Louisiana State University	Mechanical Engineering	PhD 1992
Louisiana State University	Mechanical Engineering	BSME 1986

2. Academic Employment

University of Arizona	Craig M. Berge Dean – College of Engineering	July 2019 – Present
University of Arizona	Professor and Eminent Scholar – Aerospace & Mechanical Dept.	July 2019 – Present
University of Arizona	Affiliate Professor – BIO5 Institute	August 2019 – Present
University of Florida	Department Chair – Mechanical & Aerospace Engineering (MAE)	June 2011 – May 2019
University of Florida	Affiliate Professor – Center for Women's Studies and Research	September 2015 – June 2019
University of Florida	Affiliate Professor – Materials Science & Engineering Dept.	July 2013 – June 2019
University of Florida	Associate Chair for Academics – MAE	Aug. 2008 – June 2011
University of Florida	Professor – MAE	Aug. 2007 – June 2019
University of Florida	Associate Professor – MAE	Aug. 2003 – Aug. 2007
University of Florida	Assistant Professor – MAE	Aug. 1998 – Aug. 2003

3. Professional Training and Employment

Sandia National Laboratories *Livermore, CA*	Member of Technical Staff	1995 – July 1998
Sandia National Laboratories *Livermore, CA*	Post-Doctoral Researcher	Sept. 1994 – 1995
US FDA – CDRH *Rockville, MD*	NRC Post-Doctoral Associate CDRH Electro-Optics Branch	Jan. 1993 – Aug. 1994

4. Select Highlights as Academic Administrator

- As Dean of Engineering, shape and support our strategic missions of engineering education, research, and service. UA is committed to providing our students with the skills and mindset to be thought leaders in their fields, to solving society's greatest challenges, and to set the standard as a global university. Engineering is committed to providing opportunities to enhance the educational and research experiences of our students from our BS programs through our PhD programs. Personal growth and mentorship of our faculty and staff members are key to the college's success, as is ensuring and promoting a diverse and inclusive culture across all aspects of the college. In summary, shape the strategic directions of the college, while seeking alignment of our students, staff, and faculty members with initiatives and core values.

- Collaborating directly with President Robbins and other senior leaders, formulated a plan to double student enrollment and research expenditures of the College of Engineering, moving the engineering enterprise toward levels comparable to peer Land Grant, AAU-members with main-campus medical schools. Grown first-year student enrollment more than 40%, increased external research expenditures 90%, and established two new

degree programs (Software Engineering and Computer Science & Engineering), under tenure as College of Engineering dean.

- Hired 55+ tenure-track and career-track faculty members as dean, with 36% identifying as female, Hispanic, Black, or Native American, the greatest increase in diversity in college history. Increased the diversity of Engineering's leadership team from 17% when arrived to greater than 50% women and Hispanic persons. Created a college culture committed to progress on all fronts through collaboration and strategy, change management as necessary, and care and attention to the well-being and full participation of all students, staff, and faculty members.

- Strong advocate for Engineering investment, collaborating closely with donors, UA state and federal government relations team, and a broad coalition of stakeholders to help secure nearly $150M in new external funding through philanthropy, state legislative and agency funding, and federal appropriations. The most significant 5-year external investment in College of Engineering history.

- Conceived, implemented, and hired the first Director of the ENGAGED program (**ENG**ineering **A**ccess, **G**reater **E**quity, and **D**iversity) with Provost Investment Fund and Engineering resources, to ensure academic success, sense of connection and community, and development of professional identity for students historically underrepresented in engineering, including first generation college students, those from low-income households, and groups such as women and minorities.

- Department Chair for 8 years of Mechanical and Aerospace Engineering at the University of Florida, growing MAE to the largest student population on the UF campus. Put a strong emphasis on experiential learning, funded and built a 4,000 sq. ft. student design center, worked closely with student leadership, grew female participation to 50% above the national averages in mechanical and aerospace engineering, and successfully managed the remote campus (UF REEF) at Eglin Air Force Base, more than tripling the education and research funding during 8 years as director while fostering a strong, collaborative relationship with the USAF.

5. Areas of Engineering Specialization

Specialization includes the areas of the thermal sciences and laser-based diagnostics, including biophotonics, spectroscopy, general laser-material interactions, and renewable solar energy storage. Teaching interests are in the areas of heat transfer, conduction heat transfer, combustion, laser-based diagnostics, and general engineering.

6. University Governance and Service

1. Member, UA Presidential Search Advisory Committee, Arizona Board of Regents: 2024 to present
2. Member, UA President's Cabinet: Spring 2024 to present
3. Member, UA President's University Advisory Council (UAC): Spring 2024 to present
4. Founding Advisory Board Member, UA Presidential Post-doctoral Fellowship Program: 2023 to 2024
5. Member, Board of Directors, UA Applied Research Corporation (UA-ARC): 2023 to present
6. Co-organizer, Arizona Initiative on Data & Computing (AIDC): 2023 to present
7. Chair, UA Eller College of Management, Dean Search Committee: 2022
8. Member, UF Director of Office Technology and Licensing, Search Committee: 2017
9. Member, UF *ad hoc* Campus Memorial Committee: 2017 to 2018
10. Chair, UF CISE Department Search Committee: 2012 & 2014
11. Chair, UF College of Engineering, Operations Advisory Committee: 2013 to 2015
12. Member, UF College of Engineering, Associate Dean Search Committee: 2014
13. Associate Chair for Academics – UF MAE: Aug. 2008 to June 2011
14. Member, UF Faculty Senate Council on Scholarship and Research: Aug. 2010 to Aug. 2014
15. Member, UF Faculty Senator: Aug. 2009 to May 2012
16. Member, UF College of Engineering Faculty Council: Aug. 2009 to May 2012
17. Member, College of Engineering RCM Committee: Jan. 2010 to 2012

18. Chair, UF MAE Search Committee: Aug. 2006 to Aug. 2008
19. Undergraduate advisor for UF MAE Department: Aug. 2000 to Aug. 2008
    Advised all ME majors with last name A-B: (generally 50 to 60 students at any time)
20. Member, UF MAE Search Committee: Aug. 2005 to June 2006
21. Member, UF MAE Search Committee: Aug. 2003 to May 2004
22. Member, UF Ebaugh Chaired Professorship Selection Committee: 2004
23. Member, UF College of Engineering Scholarship Committee: Jan. 2000 to Dec. 2003

- Extensive experience at the University of Arizona in helping to shape and advise on new strategic initiatives, including an original co-framer of the *Arizona Initiative for Data and Computing* (AIDC) at the invitation of President Robbins. Led the initiative to formulate and secure on-going Arizona state legislative funding for the *School of Mining and Mineral Resources*. Served as a founding advisory board member of the Presidential post-doctoral Fellowship Program with a goal of increasing minority faculty members, and serve on the UA *Applied Research Corporation* (UA-ARC) Board of Directors, helping shape applied research strategy and opportunities in support of UA campus research, notably in the areas of national security.

- Significant experience and participation in shared governance at UA and UF, including an inaugural member of the UA President's new *University Advisory Council*, as nominated by UA deans, chairing a successful search for the Eller College of Management dean, and serving on the recently formed UA *Presidential Search Advisory Committee*, as nominated by the Arizona Board of Regents. At UF, served three years as a UF Faculty Senator and four years on the UF Faculty Senate *Council on Scholarship and Research*, as well as on numerous faculty governance committees and search committees in roles of member and chair. Served as the only faculty member on an *ad hoc* UF committee to update the UF campus grand plan to incorporate a historic memorial area with larger plans to recognize campus faculty and staff leaders through a campus greenbelt.

7. Teaching, Advising, Instructional Accomplishments, and Student Mentorship

Teaching activities are concentrated in the areas of thermal sciences, photonics, and general engineering. Courses taught at UF include: (1) EML 4140 Heat Transfer; (2) EML 4410 Combustion Engineering; (3) EML 6154 Conduction Heat Transfer; (4) EML 5131 Combustion; (5) EML 6934 and EGM 6006 Laser-Based Diagnostics; and (6) EML 2920 Professional Orientation, a required undergraduate course. In addition to teaching and supervision of graduate students, active at UF and UA in working directly with undergraduate students through various programs, including oversight and guidance to all student society leadership in the College of Engineering at the University of Arizona:

- Work with student groups to facilitate a strong experiential learning program, including raising and increasing funding by more than a factor of ten in support, fostering a strong student leadership culture around professional and discipline-based student organizations, and promoting strong participation in undergraduate research through support of UA-wide and engineering-based programs. Significantly increased support to the Society of Hispanic Professional Engineers (SHPE), the Society of Women Engineers (SWE), and the National Society of Black Engineers (NSBE) in support of cultural inclusiveness in Engineering.

8. Contracts and Grants

Over $50M in funding as PI or co-PI from: NSF, US DoD, US DOE, US ARPA-E, US DHS, US Office of Naval Research, US Air Force Research Laboratory, Sandia National Laboratories, NASA, Siemens Power Generation, Siemens Building Systems, Alcon, Ocean Optics, Florida Department of Environmental Protection, UF Research Foundation, Florida Energy Systems Consortium, Mosaic Corporation, the Florida High Technology Consortium, Arizona Chamber of Commerce, and the Salt River Project.

- Led development and submission of the Arizona Commerce Authority award (33% award credit as joint co-PI) to the College of Engineering to completely renovate the Micro/Nano Fabrication Center and develop and support training in support of semiconductor manufacturing workforce. News.Arizona.Edu/news

- Multiple NSF awards including projects addressing fundamental science and engineering (as PI), engineering education (as PI), NSF I-Corp (as UA PI) regional grant (*Desert and Pacific Hub*), and collaborative international science with the German Science Foundation (as co-PI), partnering with the German Federal Institute for Materials Research and Testing (BAM), Humboldt University of Berlin, the Leibniz Institute for Analytical Science, and Technical University of Dortmund.

- Led the initiative to formulate and secure $10.8M in funding from the Arizona state legislature in support of the UA Cancer Engineering initiative, a collaborative effort between the College of Engineering, the Cancer Center, and UA Health Sciences.

- Funding from ARPA-E HEATS program (as PI) to convert water to syngas using concentrated solar thermal energy. This 4.5-year program developed and evaluated a 10-kW solar simulator to drive a redox reaction in a novel regenerative solar reactor, with goals of significantly increasing the conversion efficiency (sunlight to fuel) and performing a detailed technoeconomic analysis in collaboration with commercialization partner.

- Principal investigator and contract manager for education contract and research task-order contract with Air Force Research Laboratory Munitions Directorate at Eglin Air Force Base as Director of the UF Research Engineering and Education Facility (REEF). This unique facility is situated adjacent to Eglin AFB with a goal of fostering educational partnerships and research collaboration. Over 8 years as Director of the REEF, baseline contract amount was doubled and the research portfolio funding was tripled.

9. Teaching Course Evaluations (Most recent courses at University of Florida)

EML 2920: MAE Professional Orientation (*Undergraduate required*)
EML 4410: Combustion Engineering (*Undergraduate elective*)
EML 4140: Heat Transfer (*Undergraduate required*)
EML 5131: Combustion (*Graduate elective*)
EML 6154: Conduction Heat Transfer (*Graduate core course*)
EML 6934: Special Topics: Laser-based Diagnostics (*Graduate elective*)
EGM 6006: Laser-based Diagnostics (*Graduate elective*)

Semester	***Course***	***Enrollment***	***Overall Instructor (Q10)***
Spring 2017	EML 2920*	265	4.45 (Scale of 1 to 5: 5 = highest)
Spring 2016	EML 2920*	164	4.50
Fall 2011	EML 6154	66	4.89
Fall 2010	EML 6154	64	4.92
Spring 2010	EGM 6006	23	4.85
Fall 2009	EML 6154	40	4.86
Spring 2009	EML 4140	156	4.32
Fall 2008	EML 6154	31	5.00
Spring 2008	EGM 6006	19	4.77
Fall 2007	EML 6154	26	4.79
Spring 2007	EML 4140	145	4.80
Fall 2006	EML 6154	29	4.92
		Mean**	**4.81** (Dept. mean = 4.1~4.2)

**Co-taught with Prof. Chelsey Simmons*
***Mean of courses solely taught*

- Recognized with the University of Florida College of Engineering *2007-2008 Teacher/Scholar of the Year Award.* Given to a single faculty member each year, the award exemplifies excellence in formal teaching and excellence in research scholarship.

10. Graduate Committee Activities

a. PhD Student Supervision:

PhD Chair: 20 graduated as PhD Chair & 2 as PhD co-Chair

b. Other Graduate Student Supervision:

Master's Level Committee Role: 38 graduated as MS Chair/Co-chair (18 thesis Chair)
35 graduated or mentored as MS Committee Member

PhD Level Committee Role: 33 graduated as External Member
58 graduated or mentored as Committee Member

- PhD students mentored as chair or co-chair include a diverse group of students representing a half-dozen nations and with one-third representing historically underrepresented students (Women, Black, and Hispanic).
- Recognized with the University of Florida College of Engineering *2009-2010 Advisor/Mentor of the Year Award.* Given to a single faculty member each year, the award exemplifies excellence in mentoring and advising of graduate students, with emphasis on PhD students.

11. Patents and Copyrights (*12 total US Patents issued, 3 were Licensed/Optioned*)

1. ***Method of growing films by flame synthesis using a stagnation-flow reactor***
   U.S. Patent Number: 5,840,373 Issued: Nov. 24, 1998
   D.W. Hahn and C.F. Edwards
2. ***Medical implant composition***
   U.S. Patent Number: 5,827,904 Issued: Oct. 27, 1998
   David W. Hahn
3. ***Flame stabilizer for stagnation flow reactor***
   U.S. Patent Number: 5,951,768 Issued: Sept. 14, 1999
   D.W. Hahn and C.F. Edwards
4. ***Method for improving instrument response***
   U.S. Patent Number: 6,061,641 Issued: May 9, 2000
   D.W. Hahn, K.R. Hencken, H.A. Johnsen and W.L. Flower
5. ***Microfield interface device for monitoring animal cage environments***
   UF Patent Number: 6,998,980 Issued: February 14, 2006
   H.A. Ingley, D.W. Hahn and A.H. Battles
6. ***System and method for real-time feedback during laser refractive surgery***
   US Patent Number: 7,207,983 Issued: April 24, 2007
   D.W. Hahn and B.T. Fisher
7. ***Rodent cage to accommodate monitoring devices***
   U.S. Patent Number: 7,497,187 Issued: March 3, 2009
   H.A. Ingley, D.W. Hahn and A.H. Battles
8. ***Method and apparatus to laser ablation laser-induced breakdown spectroscopy***
   US Patent Number: 8,319,964 Issued: November 27, 2012.
   David W. Hahn
9. ***Differential laser-induced perturbation for bioimaging and chemical sensing***
   US Patent Number: 8,939,966 Issued: January 27, 2015.
   David W. Hahn

10. Solar thermochemical reactor and method of manufacture and use thereof
U.S. Patent Number: 10,072,224 Issued: Sept. 11, 2018
J. Klausner, et. al.

11. Method for the generation of power
U.S. Patent Number: 11,117,810 Issued: Sept. 14, 2021
J. Klausner, et. al.

12. System and method for rating of personnel using crowdsourcing in combination with weighted evaluator ratings
U.S. Patent Number: 11,816,622 Issued: Nov. 14, 2023
David W. Hahn and Alexander Willis

- Strong career engagement in patents and licensing. Worked closely with the UF Office of Technology and Licensing (OTL) on tech transfer of IP from the MAE department as Department Chair, including significant efforts around soft matter printing. Selected as the faculty member representative on the search committee to hire the new Director of UF OTL. At the University of Arizona, serve as PI for the UA subaward of the NSF I-Corp regional grant (*Desert and Pacific Hub*) focusing on immersive, entrepreneurial training, working closely with Tech Launch Arizona.

12. Scholarly Publications

a. Books, Monographs, and Book Chapters (from a total of 7)

D.W. Hahn and M.N. Özişik. *Heat Conduction,* 3rd edition. 718 pages. Wiley and Sons (2012).
Google Scholar citations: 964

b. Journal Publications – Top 10 most cited papers listed below from a total of 130+.

- Google Scholar: h-index = 46; Total citations > 10,500 (as of 2024)

Hahn, David W.; Omenetto, Nicolo. Laser-Induced Breakdown Spectroscopy (LIBS), Part II: Review of Instrumental and Methodological Approaches to Material Analysis and Applications to Different Fields, *Applied Spectroscopy*, Volume: 66, Pages: 347-419, April 2012. (1543 citations)

Hahn, David W.; Omenetto, Nicolo. Laser-Induced Breakdown Spectroscopy (LIBS), Part I: Review of Basic Diagnostics and Plasma-Particle Interactions: Still-Challenging Issues Within the Analytical Plasma Community, *Applied Spectroscopy*, Vol: 64, Pages: 335A-366A, Dec. 2010. (1094 citations)

Windom, Bret C.; Sawyer, W. G.; Hahn, David W. Raman Spectroscopic Study of MoS2 and MoO3: Applications to Tribological Systems, *Trib. Letters,* Vol: 42, PP: 301-310, June 2011. (726 citations)

Hahn, DW; Lunden, MM. Detection and analysis of aerosol particles by laser-induced breakdown spectroscopy, *Aerosol Science & Technology,* Vol: 33, Pages: 30-48, Jul./Aug. 2000. (277 citations)

Carranza, JE; Fisher, BT; Yoder, GD; Hahn, DW. On-line analysis of ambient air aerosols using laser-induced breakdown spectroscopy, *Spectrochimica Acta Part B-Atomic Spectroscopy,* Vol: 56, Pages: 851-864, June 29 2001. (239 citations)

Porizka, P; Klus, J; Kepes, E; Prochazka, D; Hahn, DW; Kaiser, J. On the utilization of principal component analysis in laser-induced breakdown analysis: a review, *Spectrochimica Acta Part B-Atomic Spectroscopy,* Vol: 148, Pages: 65-82, Oct. 1, 2018. (211 citations)

Hahn, DW; Flower, WL; Hencken, KR. Discrete particle detection and metal emissions monitoring using laser-induced breakdown spectroscopy, *Applied Spectroscopy,* Volume: 51, Pages: 1836-1844, Dec. 1997. (199 citations)

Dickrell, PL; Sinnott, SB; Hahn, DW; et al. Frictional anisotropy of oriented carbon nanotube surfaces, *Tribology Letters,* Volume: 18, Pages: 59-62, Jan. 2005. (164 citations)

Buckley, SG; Johnsen, HA; Hencken, KR; Hahn, DW. Implementation of laser-induced breakdown spectroscopy as a continuous emissions monitor for toxic metals, *Waste Management*, Vol:20, Pages: 455-462, 2000. (168 citations)

Fisher, BT; Johnsen, HA; Buckley, SG; Hahn, DW. Temporal gating for the optimization of laser-induced breakdown spectroscopy detection and analysis of toxic metals, *Applied Spectroscopy,* Volume: 55, Pages: 1312-1319, Oct. 2001. (148 citations)

13. Editor of a Scholarly Journal, Service on an Editorial Advisory Board.

1. Guest Editor for *Photonics*, feature issue on LIBS for aerosol analysis (2024, in progress)
2. Member of Publications Committee: Society for Applied Spectroscopy (2011 to 2022)
3. Associate Editor: *Applied Spectroscopy* (2009 to 2013)
4. Member of Editorial Board: *Spectrochimica Acta Part B,* (2010 to 2018)
5. Member of Editorial Advisory Board: *Applied Spectroscopy,* (2005 to 2020)
6. Guest Editor for *Applied Optics,* feature issue on LIBS, Vol. 42 (2003). (42 manuscripts)

14. Select International Activities

1. Oversee the UA College of Engineering international programs, including micro-campus and dual degree programs in collaboration with Sampoerna University in Indonesia, UPC in Peru, and Hebei University of Technology in China.
2. Hosted Dr. Pavel Porizka as Fulbright Scholar from Czech Republic, Oct. 2017 to April 2018.
3. Hosted Daniel Diaz from the National University of Colombia (Medellin, Colombia) as Robert S. McNamara World Bank Fellow (2017).
4. Hosted Dr. Reto Glaus, post-doctoral student from ETH-Zurich, sponsored by the Swiss National Science Foundation, Aug. 2013 to Aug. 2014.
5. External PhD & Habilitation Committee Member:
    a. Michael Taschuk (PhD committee), University of Alberta, Canada
    b. Dr. Christophe Dutouquet (Habilitation committee), University of Orleans, France
    c. S. Sreedhar (PhD committee), University of Hyderabad, India
    d. Daniel Diaz (PhD Co-chair), National University of Colombia, Medellin, Colombia
6. UF COE point person on collaborative student exchange with Escola Politécnica - University of São Paulo, Sao Paulo, Brazil, overseeing MAE student exchange beginning Fall 2014.
7. National Science Foundation and German National Science Foundation (DFG) jointly funded collaboration with University of Dortmund and the German Federal Institute for Materials Research and Testing (BAM) in Berlin, Germany. Multiple student exchanges over three-year program.

15. Membership and Activities in the Profession (approximate dates of membership)

1. Fellow, American Society of Mechanical Engineers (ASME), 1992 to present
2. Fellow, Optical Society of America (OSA), now Optica, 1999 to present
3. Fellow, Society for Applied Spectroscopy (SAS), 2000 to present
4. Member of Board of Directors, UA Applied Research Corporation (UA-ARC): 2023 to present
5. Member of Board of Directors, DEFENSEWERX/Doolittle Institute, 2011 to 2019 and 2020 to 2022
6. Senior Member, International Society for Optics and Photonics (SPIE), 2009 to 2016
7. Associate Member, American Institute of Aeronautics and Astronautics (AIAA), 2012 to present
8. Member, American Society for Engineering Education (ASEE), 2011 to present
9. Life Member, Tau Beta Pi, national engineering honor society, 1985 to present
10. Member, Pi Tau Sigma, Mechanical Engineering honor society, 1985 to present

- Joined the Board of Directors of the then named *Doolittle Institute* when they were initially created and hosted the nascent not-for-profit at the UF REEF. Funded by USAF, the Doolittle Institute was created to help foster innovation and collaboration, STEM outreach and workforce development, and tech transfer in support of the USAF. A second DOD customer led to the creation of SOFWERX in Tampa, FL. The corporate name was changed to *DEFENSEWERX*, and additional DOD customers (e.g., Nellis AFB, Maxwell AFB, US Army Corp of Engineers) were added, growing to more than $10M in annual contracts. Left the BOD for about one year, then rejoined before finally resigning in 2022 to avoid any conflicts of interest in my role as dean. The longest serving BOD member, through all four executive directors to date and through enormous growth.

16. Professional Honors and Awards

1. Fellow - American Society of Mechanical Engineers (ASME)
2. Fellow - The Optical Society of America (OSA), now known internationally as Optica
3. Fellow - Society for Applied Spectroscopy (SAS)
4. Slovak-Czech Spectroscopy Society – *Ionnes Marcus Marci Medal* (2019)
5. UF SWE Chapter *2016-2017 Outstanding Support of Women in Engineering Award*
6. Louisiana State University, Mechanical & Industrial Engineering Dept., *2014 Alumni Achievement Award*
7. Society for Applied Spectroscopy, *2011 Lester W. Strock Award*
8. College of Engineering *2009-2010 Advisor/Mentor of the Year Award*
9. College of Engineering *2007-2008 Teacher/Scholar of the Year Award*
10. Sandia National Laboratories *Award for Technical Excellence* (1998)
11. Louisiana Engineering Foundation *Vincent A. Forte Graduate Fellowship* (1987-1988)