

## DANIEL W. VAN DER WEIDE

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<https://scholar.google.com/citations?user=Cy2A2foAAAAJ&hl=en&oi=sra>

### ACADEMIC EXPERIENCE

- GRAINGER INSTITUTE FOR ENGINEERING PROFESSOR May 2025–Present
  - INAUGURAL DIRECTOR OF WISCONSIN CHIPS CENTER INTERDISCIPLINARY CENTER COORDINATING EFFORTS OF OVER THIRTY FACULTY ON INTEGRATED CIRCUIT DESIGN, FABRICATION, TEST AND WORKFORCE DEVELOPMENT October 2024–Present
  - PROFESSOR ELECTRICAL AND COMPUTER ENGINEERING (COURTESY APPOINTMENTS IN RADIOLOGY, BIOMEDICAL ENGINEERING AND MATERIALS SCIENCE) MICROFABRICATED HIGH-FREQUENCY ELECTROMAGNETIC SENSORS; localized broadband spectroscopy and microscopy, low-dimensional devices and circuits using multifunctional scanning probes; THz spectroscopy with nonlinear transmission lines; instruments for wireless communications. Contactless sensors. May 2004–Present (Associate September 1999–May 2004)
- UNIVERSITY OF WISCONSIN-MADISON
- ASSOCIATE PROFESSOR ELECTRICAL AND COMPUTER ENGINEERING May 1998–August 1999 (Assistant September 1995–May 1998)
- UNIVERSITY OF DELAWARE
- POST-DOCTORAL RESEARCHER ABTEILUNG VON KLITZING CONTACTLESS HIGH-FREQUENCY SPECTROSCOPY OF LOW-DIMENSIONAL ELECTRON SYSTEMS; achieved current record (480 fs, 3.5 V) nonlinear transmission lines August 1993–August 1995
- MAX-PLANCK-INSTITUT FÜR FESTKÖRPERFORSCHUNG
- Primary collaborators: F. Keilmann and R. Blick
- DOCTOR OF PHILOSOPHY MASTER OF SCIENCE ELECTRICAL ENGINEERING September 1988–December 1992
- STANFORD UNIVERSITY
- Dissertation: “All-electronic Generation and Detection of Terahertz Radiation with Subpicosecond Pulses.” Attained the first sub-ps and record 880 fs electrical pulses with GaAs nonlinear transmission lines; used these pulses for free-space signal generation and detection from 6 GHz–3 THz
- Advisor: D. M. Bloom

- BACHELOR OF SCIENCE  
ELECTRICAL ENGINEERING  
MINOR IN LATIN  
UNIVERSITY OF IOWA  
Collegiate Scholar Award, 1987  
Dean's Scholarship, 1982–86  
University Scholarship, 1981–86  
Member, Tau Beta Pi, Eta Kappa Nu  
President, IEEE Student Chapter, 1986  
August 1981–  
May 1987

## RECOGNITION

- FELLOW, IEEE, SENIOR MEMBER OPTICA (OSA), MEMBER APS, MRS

- VILAS ASSOCIATE  
UNIVERSITY OF WISCONSIN  
\$86,400  
2002-04
- ALEXANDER VON  
HUMBOLDT FELLOWSHIP  
"Localized microwave  
excitation of low-dimensional  
electronic devices" (J.P.  
Kotthaus, Munich)  
1999–2000  
(postponed)
- PECASE AWARD  
NATIONAL SCIENCE  
FOUNDATION  
"Pioneering research on  
nanoscale-dimension electronic  
circuits and development of a  
web-based virtual laboratory that  
provides student access to  
advanced scientific  
instrumentation"  
\$510,000  
(incorporates NSF  
CAREER Award; one  
of two engineers in  
NSF ECS Division  
selected)  
June 1998–  
May 2003
- YOUNG INVESTIGATOR  
PROGRAM AWARD  
OFFICE OF NAVAL RESEARCH  
"Coherent signal generation  
with integrated circuits for  
wideband 100 GHz network  
measurements"  
\$327,394  
May 1998–  
June 2002
- INNOVATION/TECHNICAL  
ACHIEVEMENT AWARD  
DARPA ULTRA PROGRAM  
"Significant Technical  
Achievement by an Individual  
Performer"  
(one of two  
individual  
awardees)  
October 1997
- UNIVERSITY RESEARCH  
AWARD  
FORD MOTOR COMPANY  
"All-Electronic Terahertz  
Spectroscopy for On-Board  
Exhaust-Gas Monitoring"  
\$150,000  
(award rate < 4%)  
April 1996–  
March 1999
- ANNUAL MEETING  
INVITED WORKSHOP  
SPEAKER  
OPTICAL SOCIETY OF  
AMERICA  
"Presenting Scientific  
Information on the World-  
Wide Web"  
\$2,000  
October 1996

## INSTITUTIONAL RECOGNITION

- DEAN'S MERIT INCREASE +  
PROVOST'S SPECIAL MERIT  
INCREASE  
"Extraordinarily high level of  
performance as an  
engineering faculty member"  
June 1996,  
June 1997,  
June 1998

## UNIVERSITY OF DELAWARE

- FELLOW  
NATIONAL SCIENCE  
FOUNDATION

Institute for Transforming  
Undergraduate Education,  
University of Delaware

May 1997–  
April 1998
- FELLOW  
UNIVERSITY OF DELAWARE

Center for Teaching  
Effectiveness

May 1996–  
April 1997
- OUTSTANDING EDITORIAL  
ACHIEVEMENT AWARDS  
WATKINS-JOHNSON COMPANY

“A YIG-Tuned Nonlinear  
Transmission Line Multiplier”  
and two other papers

March 1992–  
February 1993

## CURRENT AND RECENT SPONSORED RESEARCH

*SOLE PRINCIPAL INVESTIGATOR UNLESS OTHERWISE NOTED*

- RESEARCH GRANT  
ONR

PANTHER 6: Multiscale,  
physics-based approach for  
directed energy, blast and blunt  
traumatic brain injury prediction  
and prevention (co-investigator)

\$451,470

September  
2023–August  
2027
- RESEARCH GRANT  
NSF

I-Corps: A Transformative  
National Research  
Commercialization Network (UW  
Faculty Lead)

September  
2022–August  
2027
- RESEARCH GRANT  
NIH

SBIR: Treatment of  
Onychomycosis Utilizing  
Targeted, Controlled High-  
Frequency Energy (Scientific PI)

\$233,750

February 2021–  
January 2023  
  
Phase II  
extension  
proposal  
January 2023–  
December 2025
- RESEARCH GRANT  
AFOSR

Self-winding Helices as Slow-  
wave Structures for mm and sub-  
mm Traveling Wave Tubes (co-PI  
with Francesca Cavallo (UNM)  
and Max Lagally (UW))

\$856,319  
  
\$1,700,000

April 2019–  
March 2022  
  
Phase II  
extension April  
2022–March  
2025
- RESEARCH GRANT  
NSF

WiMi: A Reconfigurable Platform  
for Millimeter-Wave  
Wireless Networking and Sensing  
(Xinyu Zhang, Parameswaran)

\$899,279

October 2015–  
June 2019

|                                                                           |                                                                                                                                                             |             |                                |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------|
|                                                                           | Ramanathan and Daniel van der Weide)                                                                                                                        |             |                                |
| • RESEARCH GRANT<br>AFOSR                                                 | STTR Phase I: Near-field fiber laser comb spectroscopy (NFLCS) (with Polaronyx)                                                                             | \$100,000   | October 2009–<br>June 2010     |
| • RESEARCH GRANT<br>AFOSR                                                 | Complex modulation and coherent detection for enhanced near-field far-infrared spectroscopy                                                                 | \$285,000   | May 2008–<br>August 2010       |
| • RESEARCH GRANT<br>AFOSR                                                 | Comb spectrometer development                                                                                                                               | \$206,325   | March 2007–<br>November 2008   |
| • RESEARCH GRANT<br>NSF                                                   | RFID Partnership for Innovation in Wisconsin’s Packaging and Printing Industry Cluster (Raj Veermani, PI and Marc Anderson, co-PI)                          | \$600,000   | January 2008–<br>December 2009 |
| • RESEARCH GRANT<br>AGILENT TECHNOLOGIES INC.                             | SCANNING PROBE MICROSCOPY FOR NEAR-FIELD MICROWAVE ANALYSIS                                                                                                 | \$40,000    | June 2006–<br>May 2007         |
| • RESEARCH GRANT<br>NIH R01                                               | MICROWAVE TUMOR ABLATION (F.T. Lee, Jr., PI)                                                                                                                | \$1,087,500 | May 2006–<br>April 2010        |
| • RESEARCH GRANT<br>NIH R01                                               | ULTRA WIDEBAND MICROWAVE DETECTION OF BREAST CANCER (Susan Hagness, PI, Barry Van Veen, co-PI)                                                              |             | April 2005–<br>March 2010      |
| • EQUIPMENT GRANT<br>ONR DURIP                                            | METAL-ORGANIC CHEMICAL VAPOR DEPOSITION (MOCVD)CRYSTAL-GROWTH SYSTEM (with Dan Botez)                                                                       | \$198,450   | May 2005–<br>April 2006        |
| • AIR FORCE OFFICE OF<br>SCIENTIFIC RESEARCH                              | “Microfabricated Traveling Wave Tubes for High Power Millimeter-Wave and THz-regime Radiation Sources” (PI: J.H. Booske Co-PIs: H. Jiang, D. van der Weide) | \$149,970   | March 2005–<br>February 2006   |
| • RESEARCH GRANT<br>NIH STTR                                              | Noncontact membrane protein probe (with Prairie Technologies)                                                                                               | \$600,000   | May 2005–<br>April 2008        |
| • RESEARCH GRANT<br>AFOSR                                                 | MURI: “Nanoprobe Tools for Molecular Spectroscopy and Control” (PI with co-PI’s Robert Blick (UW) and Dennis Prather, University of Delaware)               | \$5,661,700 | August 2003–<br>July 2008      |
| • RESEARCH GRANT<br>ARO Breast Cancer Imaging<br>Research Program (BCIRP) | “Compact low-cost microwave reflectometer for breast cancer detection” (PI with co-PI’s Susan Hagness and Barry Van Veen)                                   | \$478,959   | February 2004–<br>January 2007 |

|                                            |                                                                                                                                                     |                          |                                                               |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------|
| • RESEARCH GRANT<br>NIH R-21               | “Microcatheter microwave ablation for cancer treatment” with Fred Lee, Jr. MD                                                                       | \$436,500                | May 2004–April 2006                                           |
| • RESEARCH GRANT<br>DARPA                  | “Single-Receptor Interfaces for Real-Time Kinetics” (PI with co-PI Robert Blick)                                                                    | \$650,000                | July 2003–December 2004                                       |
| • RESEARCH GRANT<br>AFOSR                  | DURIP: “Device Measurement and Modeling System for Electronic Terahertz Sensing”                                                                    | \$290,000                | May 2003–December 2003                                        |
| • RESEARCH GIFT<br>AGILENT TECHNOLOGIES    | “Near field microwave probing”                                                                                                                      | \$20,000                 | January 2003                                                  |
| • RESEARCH GRANT<br>NSF NIRT               | “Nanotubes and nanowires as biological sensors and actuators,” with R. Hamers (PI) and L. Smith                                                     | \$1,748,936              | July 2002–June 2006                                           |
| • RESEARCH GRANT<br>ARO                    | “Space-time microwave imaging for early-stage breast cancer detection” with S. Hagness (PI) and B. Van Veen                                         | \$424,701                | March 2002–March 2005                                         |
| • RESEARCH GRANT<br>ARO                    | “Biomolecular interaction sensing with sub-terahertz fields”                                                                                        | \$533,227                | May 2002–April 2005                                           |
| • RESEARCH GRANT<br>AFOSR                  | “Electronic terahertz spectroscopic imaging of explosives and weapons”                                                                              | \$497,102                | July 2002–June 2005                                           |
| • RESEARCH GRANT<br>AFOSR/DARPA            | “Broadband High-Gain Antennas for Terahertz Systems”                                                                                                | \$99,000                 | July 2003–June 2004                                           |
| • RESEARCH GRANT<br>DARPA                  | “MOSAIC: Atomic resolution magnetic resonance force microscope imaging using very high frequency cantilevers,” with M. Roukes, Caltech (PI), et al. | \$348,414<br>(UW share)  | May 2002–April 2004                                           |
| • RESEARCH GRANT<br>NIH R-21               | “Space-time microwave imaging for breast cancer detection” with S. Hagness (PI) and B. Van Veen                                                     | \$145,500                | June 2002–March 2003                                          |
| • SUPPORT GRANT<br>UNIVERSITY OF WISCONSIN | “Nanotechnology Cluster Conference” with M. Eriksson, C.-B. Eom, and R. Carpick                                                                     | \$20,000                 | July 2002–June 2003                                           |
| • RESEARCH GRANT<br>NIH STTR               | “Noncontact membrane protein probe” with Prairie Technologies, LLC                                                                                  | \$244,000<br>\$1,200,000 | Phase I May 2002–April 2004<br>Phase II April 2005–March 2009 |
| • RESEARCH GRANT<br>DARPA/NRO              | “Wideband optical arbitrary waveforms using Fourier and wavelet composition”                                                                        | \$982,815                | December 2001–November 2004                                   |

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|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------|
| • RESEARCH GRANT<br>NSF NIRT                                                       | “Complex epitaxial magnetic oxide heterostructures for nanoscale spin devices,” with C.-B. Eom (PI), et al.                                                                         | \$1,550,000                                           | July 2002–June 2006        |
| • RESEARCH GRANT<br>ARO                                                            | “Solid state quantum computing using nanostructured logic gates,” PI with Mark Eriksson, Bob Joynt and Max Lagally                                                                  | \$1,199,000                                           | May 2001–April 2005        |
| • RESEARCH GRANT<br>ANALEX CORP.                                                   | “Computational tools for optimized design of advanced traveling wave tubes,” with John Booske (PI)                                                                                  | \$130,000                                             | January 2001–December 2002 |
| • RESEARCH GRANT<br>DARPA                                                          | “Sonic MEMS,” with Amit Lal (PI), et al.                                                                                                                                            | \$1,700,000                                           | September 2000–August 2003 |
| • RESEARCH GRANT<br>ONR MURI                                                       | “Stochastic chemical sensing with engineered channel proteins” with Hagan Bayley: Texas A&M; Daniel Kahne: Princeton; Reza Ghadiri: Scripps; Leslie Loew: University of Connecticut | \$1,196,515<br>\$6,543,734 total                      | May 1999–October 2004      |
| • RESEARCH GRANT<br>AFOSR STTR                                                     | “Terahertz traveling wave tubes: a breakthrough innovation in coherent radiation sources,” with John Booske (PI)                                                                    | \$600,000                                             | March 2001–February 2002   |
| • RESEARCH GRANT<br>ONR                                                            | “Nanoscience of microwave-based integrated biological sensors,” with Bob Hamers (PI) and Lloyd Smith                                                                                | \$800,000                                             | May 2001–December 2001     |
| • RESEARCH GRANT<br>NSF SGER                                                       | “Measurement based channel modeling for coherent terahertz communications” with B. Van Veen (PI) and A. Sayeed                                                                      | \$60,000                                              | August 2001–July 2002      |
| • SMALL GRANT FOR<br>EXPLORATORY RESEARCH<br>NSF                                   | “Scanning near-field microscopy for non-contact imaging of ion channel dynamics in the DC–THz regime,” co-PI: Prof. Phillip Haydon, Iowa State University                           | \$45,000                                              | July 1998–June 1999        |
| • RESEARCH GRANT<br>DARPA INFORMATION<br>TECHNOLOGY OFFICE<br>ULTRASCALE COMPUTING | “Nanoscale field localization for manipulation and probing of computationally interesting biomolecules”                                                                             | \$763,116                                             | September 1998–August 2003 |
| • RESEARCH GRANT<br>FEDERAL AVIATION<br>ADMINISTRATION                             | “Terahertz spectroscopic reflection imaging to detect explosives and weapons on personnel”                                                                                          | \$80,000<br>(pilot study)<br>\$605,218<br>(follow-on) | March 1997–January 2001    |

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|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------|
| <ul style="list-style-type: none"> <li>“THE CENTER FOR NANOMACHINED SURFACES,” A DELAWARE ADVANCED TECHNOLOGY CENTER</li> </ul> | CENTER DIRECTOR, with Rodel, Dupont Photomask, CFM Technologies, and Delaware Diamond Knives as industrial partners; Mark Barteau (Chem E) and Mary Wirth (Chemistry) | \$6,753,897 (State portion is \$2.88MM; balance from industry) | August 1997–August 1999     |
| STATE OF DELAWARE                                                                                                               |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>RESEARCH GRANT</li> </ul>                                                                | “Localized FIR spectroscopy with scanning probes”                                                                                                                     | \$30,000                                                       | June 1997–May 1998          |
| UNIVERSITY OF DELAWARE RESEARCH FOUNDATION                                                                                      |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>RESEARCH GRANT</li> </ul>                                                                | “High-frequency field scanning for smart shielding” and “Gigabit optoelectronic communications”                                                                       | \$210,223                                                      | October 1996–September 1999 |
| W. L. GORE & ASSOCIATES AND DEL. RESEARCH PARTNERSHIP                                                                           |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>USER’S GRANT</li> </ul>                                                                  | “Multifunctional scanning probes”                                                                                                                                     | \$5,000                                                        | August 1996–July 1997       |
| NSF NNUN                                                                                                                        |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>RESEARCH GRANT</li> </ul>                                                                | “Microfabricating a nanoscilloscope”                                                                                                                                  | \$499,717                                                      | July 1996–June 1999         |
| DARPA ELECTRONICS TECHNOLOGY OFFICE ULTRA ELECTRONICS                                                                           |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>RESEARCH GRANT</li> </ul>                                                                | “Probing local device fields using AC scanning force microscopy”                                                                                                      | \$441,855                                                      | July 1996–June 1999         |
| OFFICE OF NAVAL RESEARCH                                                                                                        |                                                                                                                                                                       |                                                                |                             |
| <ul style="list-style-type: none"> <li>ENGINEERING RESEARCH EQUIPMENT GRANT</li> </ul>                                          | “Reactive ion etcher and annealer” Co-PI with P. Berger, J. Olowolafe, and J. Kolodzey                                                                                | \$100,000                                                      | August 1996–July 1997       |
| NATIONAL SCIENCE FOUNDATION                                                                                                     |                                                                                                                                                                       |                                                                |                             |

## RESEARCH SUPERVISION

### ***POST-DOCTORAL AND AFFILIATED RESEARCHERS***

|                   |                                                |                           |
|-------------------|------------------------------------------------|---------------------------|
| Alizreza Ashtiani | Microfabricated skin interfaces                | May 2023-Present          |
| Ankit Sharma      | Broadband dual-polarized antennas              | January 2024-Present      |
| Matt Dwyer        | Electronic THz systems                         | January 2016–January 2020 |
| Marcos Martinez   | Advanced Sensing with Chipless RFID            | January 2016–August 2021  |
| Chiya Saeidi      | Field simulations for contactless measurements | January 2015–May 2018     |

|                                           |                                                                             |                                   |
|-------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------|
| Alexander Kozyrev                         | Nonlinear transmission lines for high power generation                      | January 2003–<br>May 2015         |
| John Grade                                | OptoMEMS and contactless sensors/applicators                                | February 2004–<br>Present         |
| Charles Paulson                           | Scanning near-field microscopy of biomolecules and cells                    | January 2003–<br>February 2006    |
| Yaqiang Wang                              | Microfabricated near-field electromagnetic antennas                         | September 2003–<br>January 2006   |
| Il-Seok (Sunny) Son                       | BioMEMS                                                                     | October 2003–<br>August 2004      |
| George Kumar (Joint<br>with Robert Blick) | Single-molecule biophysics                                                  | July 2003–August<br>2004          |
| Kelvin Fu                                 | Microfabricated circuits and mechanical structures for<br>integrated optics | June 2003–<br>December 2004       |
| Bjoern Rosner                             | Near-field probes, scanning spin microscopy                                 | June 2002–<br>December 2002       |
| Bhagwati Prasad                           | Electromagnetic spectroscopy of biomolecules and cells                      | March 2000–<br>February 2001      |
| Moises Cywiak                             | Interferometric near-field measurement of quartz surface<br>properties      | September 1998–<br>September 1999 |
| Janusz Murakowski                         | Detection of gas species using THz spectroscopy                             | May 1998–<br>September 1999       |
| Pavel Neuzil                              | Microfabrication of multifunctional scanning probes                         | April 1996–<br>September 1999     |
| Vivek Agrawal                             | Localized and far-field microwave spectroscopy                              | June 1996–<br>December 1999       |
| Jacob Adopley                             | Full-wave field calculations for micromachined antennas                     | February 1997–<br>July 1997       |

#### ***GRADUATE ADVISEES (CURRENT)***

| <b>Name</b>        | <b>Degree</b> | <b>Topic</b>                                                                 | <b>Expected<br/>Grad. Date</b> |
|--------------------|---------------|------------------------------------------------------------------------------|--------------------------------|
| Tingyou Guo        | Ph.D.         | Self-assembled helices for traveling wave tubes                              | 2025                           |
| Ion Kolkhuis Tanke | Ph.D.         | (visiting from TU Eindhoven) Field<br>measurements with modulated scattering | 2026                           |

#### ***GRADUATE (PAST)***

|                         |       |                                                                             |      |
|-------------------------|-------|-----------------------------------------------------------------------------|------|
| Yu Huang                | Ph.D. | High-frequency field mapping                                                | 2024 |
| Yuchen Gu               | Ph.D. | Using high frequencies in medical imaging                                   | 2024 |
| Atul Bhadkhamkar        | Ph.D. | Optical sources for broadband spectroscopy                                  | 2024 |
| Matt Fayyad             | M.S.  | Transduction of biological signals with<br>microwaves                       | 2022 |
| M.R. Naeini             | Ph.D. | 3D Printed Highly Integrated Microwave<br>Components for Arrays and Sensing | 2021 |
| Aaron Day               | M.S.  | Timing stabilization for coherent measurements                              | 2019 |
| Matt Dwyer              | Ph.D. | Electronic THz systems in wide bandgap<br>semiconductors                    | 2017 |
| Marcos Martinez         | Ph.D. | Advanced Sensing with Chipless RFID                                         | 2016 |
| Pushkar Kulkarni        | Ph.D. | RF sensing circuits for medical diagnostics                                 | 2016 |
| Madhav<br>Venkateswaran | Ph.D. | MRI coils and RF-powered medical diagnostics                                | 2016 |

|                                                         |                |                                                                |         |
|---------------------------------------------------------|----------------|----------------------------------------------------------------|---------|
| Babita Yadav                                            | M.S.           | Design of Active Filter using Substrate Integrated Waveguide   | 2016    |
| Vincent Chen                                            | Ph.D.          | RFID antennas                                                  | 2012    |
| Chiya Saeidi                                            | Ph.D.          | Engineering plasmonic metasurfaces to manipulate optical waves | 2015    |
| Paul Laeseke (joint with Fred Lee, Radiology)           | M.D./<br>Ph.D. | Interstitial tumor ablation with microwaves                    | 2009    |
| Min Zhao (joint with Susan Hagness)                     | Ph.D.          | Receivers for breast cancer detection                          | 2009    |
| Hai Huang                                               | M.S.           | Broadband antennas and interfaces                              | 2009    |
| Anuj Dron (joint with Susan Hagness)                    | M.S.           | Broadband antennas for biospectroscopy                         | 2006    |
| Chao Qin                                                | Ph.D.          | Meta-material nearfield antennas                               | 2007    |
| Sung-Jin Ho                                             | Ph.D.          | Ultra-high-speed transistors                                   | 2006    |
| Abdi Karbassi                                           | Ph.D.          | Near field probing techniques                                  | 2006    |
| Min-Ki Choi                                             | Ph.D.          | Terahertz spectroscopy                                         | 2006    |
| Hongjoon Kim                                            | Ph.D.          | Left-handed nonlinear transmission lines                       | 2006    |
| Modhurin Banerjee (joint with Tom Grist, Radiology)     | M.S.           | Medical imaging with microfabricated magnetic mixers           | 2007    |
| Jake Shea (joint with Susan Hagness)                    | M.S.           | Antennas for cancer detection                                  | 2007    |
| Chih-Chuan Yen                                          | M.S.           | RFID antennas                                                  | 2006    |
| Kae-Oh Sun                                              | Ph.D.          | Compact microwave filters and wave control circuits            | 2006    |
| Chris Brace (joint with Fred T. Lee, Jr, Radiology)     | Ph.D.          | Ablation of tumors with localized microwaves                   | 2005    |
| Kimberly Taylor, Biophysics                             | Ph.D.          | Protein spectroscopy with microwaves                           | 2005    |
| Jim Truitt (joint with Mark Eriksson, Physics)          | Ph.D.          | Localized ESR, nanoscale quantum gates and quantum computation | 2004    |
| John Peck (joint with Robert Hamers, Chemistry)         | Ph.D.          | Biomolecule spectroscopy and near-zone antennas                | 2003    |
| Douglas Lagally                                         | M.S.           | Near-field magnetic antennas                                   | 2005    |
| Luke Palmer (joint with Susan Hagness, ECE)             | M.S.           | Antennas for breast cancer detection                           | 2004    |
| Rashmi Pathak (joint with Peter Timbie, Physics)        | M.S.           | Arrays of antenna-coupled microbolometers                      | 2005    |
| Jill Pamperin                                           | M.S.           | Metamaterial antennas                                          | 2005    |
| Guoqing Ning (joint with Robert Blick, and Rob Carpick) | M.S.           | BioMEMS and near-field scanning probes                         | 2005    |
| Greg Meyer                                              |                | Project assistant for integration of research and teaching     | 2003-04 |

|                        |       |                                                                                                                     |         |
|------------------------|-------|---------------------------------------------------------------------------------------------------------------------|---------|
| Daniel Imaizumi        |       | Electrophysiology/microscopy of nerve cells                                                                         | 2001-02 |
| Hui Liu                | M.S.  | Electromagnetic spectroscopy of biomolecules and cells                                                              | 2001    |
| XiaoQing Wang          |       | Integrated terahertz electronic circuits                                                                            | 1998-99 |
| Prayoot Akkaraekthalin | Ph.D. | Integrated frequency translation for low-cost, high-performance network analysis                                    | 1998    |
| Jon Bergey             | M.S.  | Scanning field measurements and instrumentation                                                                     | 1999    |
| Toralf Bork            | M.S.  | Measurement system for electromagnetic near-zone fields (thesis completed with Technical Univ. of Chemnitz-Zwickau) | 1999    |
| Tom Clupper            | M.S.  | Nonlinear device measurements and modeling                                                                          | 1999    |
| Rob March              | M.S.  | Web-based remote-access instrumentation and high-frequency CMOS device and circuit models                           | 1999    |
| Alexander Ukhanov      |       | Scale-model broadband antenna measurements                                                                          | 1996-97 |

## TEACHING EXPERIENCE

ECE 230, CIRCUIT ANALYSIS, University of Wisconsin-Madison. Fall 2018, 2021 Spring 2019, 2020, Fall 2021, Spring 2022, Fall 2023, Spring 2024, Fall 2024. Core undergraduate circuit analysis course, based on Alexander & Sadiku and flipped-classroom approach.

ECE 270, 271, CIRCUIT LABORATORY, University of Wisconsin-Madison. Fall 2020, Spring 2021. Core undergraduate circuit laboratory courses taught using online methods.

ECE 340, ELECTRONIC CIRCUITS I, University of Wisconsin-Madison. Fall 2011, 2014, 2016-20. Core undergraduate transistor circuits course, based on Sedra & Smith and interactive quizzing.

ECE 342, ELECTRONIC CIRCUITS II, University of Wisconsin-Madison. Spring 2014. Follow-on advanced circuits course with emphasis on R.D. Middlebrook's analysis techniques and Sedra & Smith.

ECE 447, APPLIED COMMUNICATIONS SYSTEMS, University of Wisconsin-Madison. Spring 2000, Fall 2000, 2001, 2002, 2008-19, 2021, 2023, 2024 (supervised teaching by M. Martinez Fall 2018, 2020). Developed and taught advanced time- and frequency-domain analysis and design graduate level course. This course draws on electromagnetic theory for transmission lines, device physics for linear and nonlinear circuit models, time- and frequency-domain measurements, and CAD software. Final project is an ADS simulation.

ECE 547, ADVANCED COMMUNICATIONS CIRCUIT DESIGN, University of Wisconsin-Madison. Spring 2001, 2003, 2005, 2007, 2009-22, 2024, 2025 Developed and taught advanced communications circuits course, with emphasis on PLL's, transceiver architecture, IC concepts, PCM, and components; introduced laboratory and component projects for 2.4 GHz transceiver system.

ECE 420, ELECTROMAGNETIC WAVE TRANSMISSION. Fall 2008-09; SPRING 2012-13, (supervised teaching by M. Martinez Fall 2018).

ECE 601, BUSINESS FOR ENGINEERS, University of Wisconsin-Madison. Fall 2002-05. Developed and taught popular business course for primarily seniors in all engineering departments. Course features significant business planning, accounting and case analysis.

ECE 545, ADVANCED COMMUNICATIONS ENGINEERING LABORATORY, University of Wisconsin-Madison. Spring 2002, 2006, 2010, 2014, 2021. Developed and taught laboratory course on microwave and communications circuits measurements. Covered slotted-line measurements, scalar and

vector network analyzers, time-domain reflectometers, transistor amplifier design and construction, mixers, couplers, filters and computer-aided design.

SELECTED FOR NSF NEW CENTURY SCHOLARS WORKSHOP, Stanford University. Summer 1998.

ELEG467/667, HIGH-SPEED/MICROWAVE INTEGRATED CIRCUITS, University of Delaware. Spring 1995–99. Developed and taught advanced time- and frequency-domain analysis and design graduate level course. This course draws on electromagnetic theory for transmission lines, device physics for linear and nonlinear circuit models, time- and frequency-domain measurements, and CAD software (e.g., HSPICE, Libra, and Sonnet Software's *em*) for a comprehensive introduction to time- and frequency-domain IC concepts in the picosecond/GHz realm. The course features an industrially relevant final project.

ELEG661, MATERIALS & DEVICES SEMINAR, University of Delaware. Spring 1996–97. Graduate seminar with invited speakers.

SCANNING PROBE MICROSCOPY FOR MATERIALS CHARACTERIZATION, University of Delaware. Spring 1996–97. Highly ranked Engineering Outreach short course with industrial and academic participants.

ELEG312, ADVANCED ELECTRONIC CIRCUITS, University of Delaware. Autumn 1995–98. Junior-level core circuits course covering Sedra & Smith Chapters 5–8 (FETs through feedback). *Nominated by students for a University Teaching Award for 1996–97 and 1997–98 semesters.*

EE139, DESIGN PROJECT, Assistant to Professor David M. Bloom, Stanford University. Spring 1991–92. Discussed and assisted with electronic projects for seniors in EE.

EE392L, BUSINESS MANAGEMENT FOR ELECTRICAL ENGINEERS, Assistant to Consulting Professor Robert Maxfield, Stanford University. Spring 1990–91. Managed all grading, held discussions and lectured on entrepreneurship for 60 students.

IE273, ENTREPRENEURSHIP IN HIGH TECHNOLOGY, Assistant to Lecturer Charles Banfe, Stanford University. Autumn 1990–91. Selected students, managed all grading, held discussions and lectured on entrepreneurship for 60 students; awarded a departmental certificate of recognition for this work.

EE246, MICROWAVE CIRCUIT DESIGN, Assistant to Professor Bertram A. Auld, Stanford University. Winter 1989–90. Managed all grading, held discussions and lectured on microstrip resonators and computer-aided design.

## PROFESSIONAL ACTIVITIES AND SERVICE

- Work featured in US News & World Report  
<http://www.vdwdesign.com/projects/THz/briefings/usnews-thz-aug2003.jpg> (scanned copy of article)
- Work featured in “Battling Bioterror” by Noah Shachtman  
<http://www.techcentralstation.com/1051/defensewrapper.jsp?PID=1051-350&CID=1051-112202A>
- Work featured in Laser Focus World, April 2003 article on THz imaging  
[http://lfw.pennnet.com/Articles/Article\\_Display.cfm?Section=ARCHI&Subsection=Display&ARTICLE\\_ID=174912&KEYWORD=weide&p=12](http://lfw.pennnet.com/Articles/Article_Display.cfm?Section=ARCHI&Subsection=Display&ARTICLE_ID=174912&KEYWORD=weide&p=12)
- “Terahertz imaging: T-ray specs” *Nature* **424**, 721 - 722 (14 Aug 2003) News Feature  
[http://www.vdwdesign.com/projects/THz/briefings/Nature\\_THz\\_424721a\\_r.pdf](http://www.vdwdesign.com/projects/THz/briefings/Nature_THz_424721a_r.pdf)
- Cover issue of Optical Society of America's Optics and Photonics News, April 2003  
[http://www.vdwdesign.com/projects/THz/briefings/opn\\_thz\\_2003.pdf](http://www.vdwdesign.com/projects/THz/briefings/opn_thz_2003.pdf)
- Organized and lead a FIAP focus session on “Biosensors & physics for high-throughput drug screening” at the APS March Meeting, 2003

- NSF annual site review team for Cornell Nanobiotechnology Center, September 2002
- NSF Panel Review, June 2002
- Coordinating Bionanofab Facility proposal
- Authored (with D. Beebe) “Keck Center for Engineered Cellular Scale Exploration” proposal
- Ph.D. thesis review for Singapore
- Mid-term review for faculty member at Rice University
- Advised MEPP program student Nicholas Thompson (2002)
- Advisor to cluster hire in Chemical Genomics
- Member of the SURE/REU research projects team
- Army Research Office proposal review, “Biological sensing with terahertz circular dichroism spectroscopy”
- Organized and Chaired Invited Special Topic Session, “THz Contrast Mechanisms in Chemical and Biological Systems,” at 9th International Conference on Terahertz Electronics, Charlottesville VA, Oct 15-16, 2001.
- Co-organized UW-Madison/Promega Symposium on Biological Imaging: Solving Biological Problems with Imaging Technology, May 25, 2001
- Co-organized UW-Madison Interdisciplinary Workshop: Emerging Techniques in Screening and Imaging Science, October 19, 2000; organizing follow-on conference on high-throughput screening for DNA, proteins and therapeutic discovery for Fall 2001
- NSF PFET Review Panel, June 1997, March 1998
- Head, NSF SBIR Phase I Review Panel, October 1995
- NSF mail reviews, December 1995–Present
- Swiss NSF mail reviews, May 1997–Present
- Ireland NSF mail reviews, 2001
- Journal Reviewer, *IEEE Nano*, *Optics Comm.*, *Macromolecules*, *Appl. Phys. Lett.*, *Proc. IEEE*, *IEEE Trans. Microwave Theory Tech.*, *IEEE Electron Dev. Lett.*, *Rev. Sci. Instrum.*
- Textbook Reviewer, *Microelectronic Circuits*, Sedra & Smith, 4<sup>th</sup> Ed., 1996; *Microwave and RF Design of Wireless Systems*, Pozar, 2001
- Member, OSA Emerging Technology Committee, 1997–2010

## UNIVERSITY ACTIVITIES AND SERVICE

- Executive Director, Wisconsin CHIPS Center 2024-Present
- Faculty Senate, 2016-2022; University Budget Committee 2023-25
- University Conflict of Interest Committee, 2007-15
- Representing the College of Engineering on the Faculty Advisory Council for the Kauffman/VIEW (“Values in Entrepreneurship at Wisconsin”) Campus Initiative; presented at a site visit “Discussions of Wisconsin cross-campus and entrepreneurial activities” (October 7, 2003, School of Business)
- 2003 “Conversations in Science” series, hosted by Prof. Bassam Shakashiri (October 2, 2003, Edgewood High School, Madison)

- Visited a University of Wisconsin preschool class and demonstrated separation of mixed dyes using an agar gel matrix to demonstrate a visible aspect of nanotechnology (May 2003)
- Co-chair and organizer of “NanoExpo ’03,” a one-and-a-half-day symposium emphasizing the emerging role of nanotechnology in our lives during the next 10 years. The conference was held May 30 and 31, 2003, in Madison. Conference website <http://nano.engr.wisc.edu> and report <http://www.engr.wisc.edu/news/headlines/2003/Jun02.html>
- Helped produce a 6-minute video short on nanotechnology at Wisconsin (May 2003)
- Hosted and co-organized a Materials Science Program Open House. This event brought together faculty of materials science and physics from regional four-year schools to introduce them to the nanoscience work going on at the University of Wisconsin (May 2003)
- Invited affiliate of the Genome Center of Wisconsin (2003)
- Initiated the UW response to NSF renewal for National Nanofabrication User’s Network (NNUN)
- Co-organized and co-hosted “NanoExpo ’03,” a one-and-a-half-day symposium emphasizing the emerging role of nanotechnology in our lives during the next 10 years. The conference was held May 30 and 31, 2003, in Madison, Wisconsin. This conference, with local, regional, and national speakers, drew industry professionals interested in new opportunities and trends in nanotechnology, academic researchers who wished to learn about the latest nanotechnology applications, teachers at all levels who wished to exchange ideas for nano education and outreach programs, and members of the public curious about nanotechnology.
- Demonstrated wireless and optical communications to kindergarten class at Thoreau Elementary School, Madison WI for NSF 50<sup>th</sup> Anniversary Service Program, Jan 2001
- Graduate admissions committee, 2000–2016
- Curriculum committee, 2001–present
- MATHCOUNTS Day 1997: Organized and conducted demonstrations and tours of Electrical Engineering for 400 middle-school students, Jan 16, 1997
- MATHCOUNTS Day 1996: Organized and conducted demonstrations and tours of Electrical Engineering for 250 middle-school students, Jan 18, 1996
- Dupont Explorer Scouts Tour (with D. Vengroff): Organized and conducted laboratory demonstrations and tours of Electrical Engineering for 35 high-school students and parents/advisors, Feb 10, 1997

### MULTIDISCIPLINARY ACTIVITIES IN TEACHING, RESEARCH AND SERVICE

- Appointments in Radiology, Biomedical Engineering and Materials Science
- Trainer (member) of UW Biophysics Degree Program, an interdisciplinary program offering the Ph.D. degree—advised Kimberly Taylor in this program.
- Two of the professionals in my laboratory (Steve Limbach [former] and Alan Betterman [current]) have degrees in biology
- Collaboration with Phil Haydon (Neuroscience, Tufts University) on local probing of protein activity in cells
- Initiated a collaboration with Homme Hellinga (Biochemistry, Duke University) on nanopore sequencing of nucleic acids
- Collaborations and student exchanges with Ed Chapman (Physiology), Gerard Marriott (Physiology), Matt Jones (Physiology), Fred Blattner (Genetics), Jo Handelsmann (Plant

Pathology), Robert Goodman (Plant Pathology) [wrote two NIH proposals with the last three people]

- Collaboration with Bob Hamers and Lloyd Smith (Chemistry), joint proposals written and funded; John Peck (my graduate student) now funded in Chemistry; regular group meetings and joint publications
- Collaboration with Ron Raines (Biochemistry) in protein stretching with scanning force microscopes as well as studying transport of cationic peptides across lipid bilayers using electrophysiology

## PROFESSIONAL EXPERIENCE

### ***START-UPS***

- Board member, Free Space Photonics Inc.
- Consultant, Elephas (screening of biopsy tissue for immunotherapeutic response)
- Advisor, LastLock (wireless security systems)
- Founder and Business Development, AntenneX, B.V. (millimeter-wave antenna measurements)
- Founder and Board Member, Elucent Medical, Inc. (wireless surgical navigation)
- Founder, Accure Medical, LLC (RF treatment for finger- and toenail infection)
- Founder, ThroughPuter, LLC (Platform-as-a-Service authentication)
- Founder, President, vdW Design, LLC (Incubator, SBIR awardee)
- Founder, Board Member, Advisor, Micrablate, LLC, now NeuWave Medical, Inc. (Microwave percutaneous ablation devices; acquired by Johnson & Johnson 2016)
- Founder, President, NFI, LLC (Near-field imaging for skin cancer)
- Founder, President, Tera-X, LLC (Ultrawideband antennas, imaging radar, SBIR awardee)
- Founder, VP of Engineering, Optametra, LLC (Coherent lightwave signal analyzers; acquired by Tektronix 2011)

MICROWAVE DEVICE RESEARCH AND DEVELOPMENT, Advanced Development Department, Watkins-Johnson Company, Palo Alto, California. June 1988–July 1993. Designed and built several broadband YIG-tuned microwave oscillators; published the lowest-reported phase noise for an oscillator with a magnetostatic-wave resonator; developed and published division-wide computer-aided circuit design capabilities with Unix workstations, including nonlinear device and circuit modeling, and electromagnetic simulations; taught seminars on microwave oscillator theory, circuit simulation and MESFET analysis.

CELLULAR TELEPHONE ENGINEERING, International Cellular Subscriber Division, Motorola, Inc., Schaumburg, Illinois. August 1987–April 1988. Designed and developed a fixed-subscriber unit for remote cellular telephone installations; investigated field quality and cellular coverage in Hong Kong and Thailand; wrote a database application to track international cellular subscriber field failure types for feedback to design and production; worked with Division Management to implement Motorola's "Six-Sigma" quality program for international cellular telephones.

INTERACTIVE SPEECH AND WRITING THERAPY, sola mente, Inc., Iowa City, Iowa. August 1985–August 1987. Started and ran a university-incubated company to design and build combined speech- and handwriting-recognition device for therapeutic and language-acquisition applications.

MICROWAVE RESONATOR RESEARCH AND DEVELOPMENT, Signal Analysis Division, Hewlett-Packard Company, Santa Rosa, California. May 1985–August 1985. Studied, measured, and reported on new magnetostatic-wave signal processing devices; improved resonator characterization by automating the HP8510A network analyzer. Taught a noontime course entitled "Latin at Lunch."

DYE LASER CONTROL ENGINEERING, Laser Isotope Separation Division, Lawrence-Livermore National Laboratory, Livermore, California. May 1984–August 1984. Observed, documented, and improved dye laser temperature control system for precise uranium isotope enrichment.

AUTOMATIC TEST EQUIPMENT ENGINEERING, Production Automation, Division of EWA, Inc., Santa Clara, California. May 1983–December 1983. Assisted in design, construction, and testing of production ATE for Apple Computer, Western Electric, and Comdial. Made engineering drawings, specified components, and wrote spreadsheets to assist in bidding.

## JOURNAL PUBLICATIONS

### **CURRENT**

1. Tairan Xi, Haotian Jiang, Jiangxu Li, Yangchen He, Yuchen Gu, Carter Fox, Louis Primeau, Yulu Mao, Jack Rollins, Takashi Taniguchi, Kenji Watanabe, Daniel van der Weide, Daniel Rhodes, Yang Zhang, Ying Wang, and Jun Xiao, “Terahertz sensing based on the nonlinear electrodynamics of the two-dimensional correlated topological semimetal TaIrTe<sub>4</sub>” to appear in *Nature Electronics* (2025)
2. Yuchen Gu, Hai-Han Sun, and Daniel W. van der Weide, “A Near-Field Super-Resolution Network for Accelerating Antenna Characterization,” *IEEE Transactions on Antennas and Propagation*, 73 (3) 1732-1742 (2025)
3. Shiva Hajitabarmarznaki, Shelley Scott, Marcos Martinez Argudo, Divya Prakash, Max Lagally, Daniel van der Weide, Francesca Cavallo, “Integrated Couplers of THz Radiation for Helical Slow-Wave Structures,” *ACS Omega* 9 (33) 35973-35977 (2024)
4. A. S. Bhadkamkar, S. Carpenter, D. C. Gold, M. Beede, R. H. Goldsmith, D. van der Weide, and D. D. Yavuz, “High-power Raman lasing and efficient anti-Stokes generation in mm-sized crystalline disk resonators,” *Opt. Lett.* 49, 2529-2532 (2024)
5. Yuchen Gu, D. Kendig and M. Shakouri, and D. W. van der Weide, “Dual Mode Split Ring Resonator Sensing and Hyperthermia Array for Skin,” in *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*, doi: 10.1109/JERM.2024.3373537.
6. D. W. van der Weide, D. Kendig and M. Shakouri, “High-Speed Thermal Imaging Can Resolve Short RF Pulse Effects in Tissue Models,” in *IEEE Journal of Electromagnetics, RF and Microwaves in Medicine and Biology*, doi: 10.1109/JERM.2024.3363906.
7. D. C. Gold, A. S. Bhadkamkar, S. Carpenter, L. T. Hogan, M. Dwyer, M. Beede, R. H. Goldsmith, D. van der Weide, and D. D. Yavuz, “High-power near-CW Raman lasing in mm-sized glass disks,” *Opt. Lett.* 47, 4171-4174 (2022)
8. Marcos Martínez Argudo, Shiva Hajitabarmarznaki, Divya J. Prakash, Matthew M. Dwyer, Max G. Lagally, Daniel W. van der Weide, and Francesca Cavallo, “Amplification of THz waves by beam-wave interaction in self-assembled helical slow-wave structures with single and double chirality,” *AIP Advances* 12, 085121 (2022)
9. Divya J. Prakash, Matthew M. Dwyer, Marcos Martinez Argudo, Mengistie L. Debasu, Hassan Dibaji, Max G. Lagally, Daniel W. van der Weide, and Francesca Cavallo, “Self-Winding Helices as Slow-Wave Structures for Sub-Millimeter Traveling-Wave Tubes,” *ACS Nano* 15 (1), 1229-1239 (2021)
10. A. M. Day, M. M. Dwyer and D. W. van der Weide, “Phase Perturbation as a Measurement Metric: A Novel Noncontact In-Line Production Measurement Through an All-Electronic Millimeter-Wave System Tracking Millidegree Perturbations in Phase,” *IEEE Microwave Magazine*, vol. 22, no. 1, pp. 79-85 (2021)
11. M. Ranjbar Naeini, M. Mirmozafari and D. van der Weide, “Monolithic 3-D-Printing of an Integrated Marchand Balun with a Dipole Antenna,” in *IEEE Transactions on Components, Packaging and Manufacturing Technology*. vol. 10, no. 4, pp. 654-658 (2020)

12. Mohammadreza Ranjbar Naeini and Daniel van der Weide, "Cascaded 3D-Printed X-band Components for Subsystems," *IEEE Microwave and Wireless Components Letters* 29 (5), 333 (2019)
13. C. Saeidi and D. van der Weide, "Nanoscale nonlinear circuit elements at optical frequencies," *IEEE Trans. Nanotech.*, 17 (3), 611 (2018)
14. Atul Bhadkamkar, Matthew Dwyer, and Daniel van der Weide, "Analysis of half-tapered fiber coupling for microresonators," *Opt. Express* 25, 32841-32852 (2017)
15. M. Martinez and D. van der Weide, "Compact single-layer depolarizing chipless RFID tag," *Microw. Opt. Technol. Lett.*, 58, 1897-1900 (2016)
16. P.B. Kulkarni and D. van der Weide, "Wideband circularly polarized SIW cavity-backed slot antenna with sequential rotation feeding," *Microw. Opt. Technol. Lett.*, 58: 2566-2570 (2016)
17. C. Saeidi and D. van der Weide, "A figure of merit for focusing metasurfaces," *Applied Physics Letters*, 106 (11), 113110 (2015)
18. C. Saeidi and D. van der Weide, "Wideband plasmonic focusing metasurfaces," *Applied Physics Letters*, 105 (5), 053107 (2014)
19. C. Saeidi and D. van der Weide, "Bandwidth-tunable optical filters with nanoparticle arrays," *Optics Express*, vol. 22, pp. 12499-12504 (2014)
20. C. Saeidi and D. van der Weide, "Nanoparticle array based optical frequency selective surfaces: theory and design: errata," *Optics Express*, vol. 21, pp. 24119-24119 (2013)
21. C. Saeidi and D. van der Weide, "Nanoparticle array based optical frequency selective surfaces: theory and design," *Optics Express* vol. 21, pp. 16170-16180 (2013)
22. C. Saeidi and D. van der Weide, "Synthesizing metasurfaces with nanodisks," *Applied Physics Letters* vol. 103, pp. 183101, Oct 2013.
23. C. Saeidi and D. van der Weide, "Periodic Substrate Structure Suppresses Spurious Response in Coupled Line Filters," *Microwave and Optical Technology Letters*, vol. 54, pp. 2175-2178, Sep 2012.
24. S. Ramachandran, D. W. van der Weide, and R. H. Blick, "Direct microwave transmission on single  $\alpha$ -hemolysin pores," *Applied Physics Letters*, vol. 99, pp. 093105-093105-3, 2011.
25. H. Kim, S. Ramachandran, E. Stava, D. van der Weide, and R. Blick, "Radio-frequency response of single pores and artificial ion channels," *New Journal of Physics*, vol. 13, p. 093033, 2011.
26. H. Y. Chen, A. S. Bhadkamkar, T. H. Chou, and D. W. van der Weide, "Vector backscattered signals improve piggyback modulation for sensing with passive UHF RFID tags," *IEEE Transactions on Microwave Theory and Techniques*, vol. 59, pp. 3538-3545, 2011.
27. G. Qin, N. Jiang, J. H. Seo, N. Cho, G. E. Ponchak, D. van der Weide, P. Ma, S. Stetson, M. Racanelli, and Z. Ma, "Cryogenic operation of a 24 GHz MMIC SiGe HBT medium power amplifier," *Semiconductor Science and Technology*, vol. 25, p. 125002, 2010.
28. S. Zhang, D. van der Weide, and J. Oliver, "Superfast phase-shifting method for 3-D shape measurement," *Opt. Express*, vol. 18, pp. 9684-9689, 2010.
29. S. Ramachandran, R. H. Blick, and D. W. van der Weide, "Radio frequency rectification on membrane bound pores," *Nanotechnology*, vol. 21, p. 075201, 2010.
30. A. B. Kozyrev and D. W. van der Weide, "Pulse formation in nonlinear left-handed transmission line media," *Applied Physics Letters*, vol. 96, p. 104106, 2010.
31. S. Sengele, H. Jiang, J. H. Booske, C. L. Kory, D. W. van der Weide, and R. L. Ives, "Microfabrication and Characterization of a Selectively Metallized W-Band Meander-Line TWT Circuit," *IEEE Transactions on Electron Devices*, vol. 56, pp. 730-737, 2009.

32. A. M. Marconnet, M. M. He, S. Sengele, S.-J. Ho, H. Jiang, N. J. Ferrier, D. W. van der Weide, V. Madhavan, N. Nelson, and J. H. Booske, "Microfabricated Silicon High-Frequency Waveguide Couplers and Antennas," *IEEE Transactions on Electron Devices*, vol. 56, pp. 721-729, 2009.
33. Laeseke, Paul F, Lee, Fred T, Sampson, Lisa A, van der Weide, Daniel W, Brace, Christopher L, "Microwave ablation versus radiofrequency ablation in the kidney: high-power triaxial antennas create larger ablation zones than similarly sized internally cooled electrodes," *Journal of vascular and interventional radiology*, *Journal of Vascular and Interventional Radiology*, vol. 20, p. 1224, 2009
34. Laeseke P.F., Lee F.T. Jr., van der Weide D.W. and Brace C.L., "Multiple-Antenna Microwave Ablation: Spatially Distributing Power Improves Thermal Profiles and Reduces Invasiveness," *Journal of Interventional Oncology*, vol. 2, p. 65, 2009.
35. I. V. Shadrivov, A. B. Kozyrev, D. W. van der Weide, and Y. S. Kivshar, "Nonlinear magnetic metamaterials," *Opt. Express*, vol. 16, pp. 20266-20271, 2008.
36. T. Ganz, M. Brehm, H. G. von Ribbeck, D. W. van der Weide, and F. Keilmann, "Vector frequency-comb Fourier-transform spectroscopy for characterizing metamaterials," *New Journal of Physics*, p. 123007, 2008. (IOP Select)
37. A. B. Kozyrev and D. W. van der Weide, "Nonlinear left-handed transmission line metamaterials," **Invited Topical Review**, *Journal of Physics D: Applied Physics*, p. 173001, 2008.
38. I. V. Shadrivov, A. B. Kozyrev, D. W. van der Weide, and Y. S. Kivshar, "Tunable transmission and harmonic generation in nonlinear metamaterials," *Applied Physics Letters*, vol. 93, p. 161903, 2008. (selected for the November 2008 issue of Virtual Journal of Ultrafast Science)
39. Nathan A. Durick, Paul F. Laeseke, Lynn S. Broderick, Fred T. Lee, Jr, Lisa A. Sampson, Tina M. Frey, Thomas F. Warner, Jason P. Fine, D.W. van der Weide, and Christopher L. Brace, "Microwave Ablation with Triaxial Antennas Tuned for Lung: Results in an in Vivo Porcine Model," *Radiology* vol. 247, pp. 80-87, 2008.
40. A. Karbassi, D. Ruf, A. D. Bettermann, C. A. Paulson, D. W. van der Weide, H. Tanbakuchi, and R. Stancliff, "Quantitative scanning near-field microwave microscopy for thin film dielectric constant measurement," *Review of Scientific Instruments*, vol. 79, p. 094706, 2008.
41. M. Zhao, J. D. Shea, S. C. Hagness, D. W. van der Weide, B. D. Van Veen, and T. Varghese, "Numerical Study of Microwave Scattering in Breast Tissue via Coupled Dielectric and Elastic Contrasts," *IEEE Antennas and Wireless Propagation Letters*, vol. 7, pp. 247-250, 2008.
42. H.-G. von Ribbeck, M. Brehm, D. W. van der Weide, S. Winnerl, O. Drachenko, M. Helm, and F. Keilmann, "Spectroscopic THz near-field microscope," *Optics Express*, vol. 16, issue 5, pp. 3430-3438, 2008.
43. C. Qin, A. B. Kozyrev, A. Karbassi, and D. W. van der Weide, "Microfabricated V-band left-handed transmission lines," *Metamaterials*, vol. 2, pp. 26-35, 2008.
44. A. B. Kozyrev and D. W. van der Weide, "Trains of Envelope Solitons in Nonlinear Left-Handed Transmission Line Media," *Applied Physics Letters*, vol. 91, pp. 254111-3, 2007.

45. A. B. Kozyrev, C. Qin, I. V. Shadrivov, Yu. S. Kivshar, I. L. Chuang and D. W. van der Weide, "Wave scattering and splitting by magnetic metamaterials," *Optics Express*, vol. 15, no. 18, pp. 11714-11722, 2007.
46. J. Grade, P. Haydon, and D. W. van der Weide, "Electronic terahertz antennas and probes for spectroscopic detection and diagnostics," *Proceedings of the IEEE*, vol. 95, pp. 1583-1591, 2007.
47. Ho, S. J., Choi, M. K., van der Weide, D. W. (2007). A robust parameter extraction method for HBT small-signal equivalent circuit. *Microwave and Optical Technology Letters*, 49(8), 1845-1848.
48. Chih-Chuan Yen, Gutierrez, A. E., Veeramani, D., & van der Weide, D. (2007). Radar cross-section analysis of backscattering RFID tags. *IEEE Antennas and Wireless Propagation Letters*, 6(1), 279-81, 2007.
49. Y. Wang, A. D. Bettermann, and D. W. van der Weide, "Process for scanning near-field microwave microscope probes with integrated ultratall coaxial tips," *Journal of Vacuum Science & Technology B: Microelectronics and Nanometer Structures*, vol. 25, pp. 813-816, 2007.
50. CL Brace, PF Laeseke, LA Sampson, TM Frey, D.W. van der Weide, and FT Lee Jr., "Microwave ablation with multiple simultaneously powered small-gauge triaxial antennas: Results from an in vivo swine liver model," *Radiology*, vol. 244, pp. 151-156, 2007.
51. Srijit Goswami, K. A. Slinker, Mark Friesen, L.M. McGuire, J. L. Truitt, Charles Tahan, L. J. Klein, J. O. Chu, P. M. Mooney, D. W. van der Weide, Robert Joynt, S. N. Coppersmith, and M. A. Eriksson, "Controllable valley splitting in silicon quantum devices," *Nature Physics*, vol. 3, pp. 41-45, 2007.
52. Hongjoon Kim, Alexander B. Kozyrev, Abdolreza Karbassi, and D.W. van der Weide, "Compact left-handed transmission line as a linear phase-voltage modulator and efficient harmonic generator," *IEEE Transactions on Microwave Theory and Techniques* 55(3), 571-578, 2007.
53. CL Brace, PF Laeseke, LA Sampson, TM Frey, D.W. van der Weide, and FT Jr. Lee, "Microwave ablation with a single small-gauge triaxial antenna: In vivo porcine liver model," *Radiology*, vol. 242, pp. 435-440, 2007.
54. M. Zhao, J. D. Shea, S. C. Hagness, and D.W. van der Weide, "Calibrated free-space microwave measurements with an ultrawideband reflectometer-antenna system," *IEEE Microwave and Wireless Component Letters*, vol. 16, pp. 675-677, 2006.
55. V. Joshkin, M. Lagally, and D.W. van der Weide, "Double layer based electronic nanodevices fabricated on silicon nanoneedles," *Journal of Applied Physics*, vol. 100, pp. 084329, 2006. (also cited in *Virtual Journal of Nanoscale Science & Technology*, 2006.)
56. Hongjoon Kim, Sung-Jin Ho, Min-Ki Choi, Alexander B. Kozyrev, and D.W. van der Weide, "Combined Left- and Right- Handed Tunable Transmission Lines With Tunable Passband and 0° Phase Shift," *IEEE Transactions on Microwave Theory and Techniques*, vol. 54, pp. 4178-4184, 2006.
57. Alexander B. Kozyrev, Hongjoon Kim and D.W. van der Weide, "Parametric amplification in left-handed transmission line media," *Applied Physics Letters*, vol. 88, pp. 264101, 2006.

58. A. Karbassi, C. A. Paulson, A. B. Kozyrev, M. Banerjee, Y. Wang, and D. W. van der Weide, "Quadraxial probe for high resolution near-field scanning RF/microwave microscopy," *Applied Physics Letters*, vol. 89, pp. 153113, 2006. (also cited in *Virtual Journal of Nanoscale Science & Technology*, 2006.)
59. A. B. Kozyrev and D.W. van der Weide, "Reply to the Comment on "Explanation of the Inverse Doppler Effect Observed in Nonlinear Transmission Lines,"" *Physical Review Letters*, vol. 96, pp. 069403, 2006.
60. C. L. Brace, P. F. Laeseke, L. A. Sampson, T. M. Frey, D.W. van der Weide, and F. T. Lee, Jr., "Microwave ablation with small-gauge triaxial antennas. Part II: Using multiple antennas to create large volumes of ablation in vivo," *Radiology*, 2006.
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## BOOK SECTIONS

1. I. V. Shadrivov, M. Lapine, Y. S. Kivshar, A. Kozyrev, and D. van der Weide, "Nonlinear and Tunable Left-Handed Transmission Lines," in *Nonlinear, Tunable and Active Metamaterials*. vol. 200, ed: Springer International Publishing, 2015, pp. 89-103.

2. A. Kozyrev and D.W. van der Weide, "Nonlinear and Tunable Left-Handed Metamaterials," in *Metamaterial*, edited by Xun-ya Jiang, Intech, ISBN 978-953-51-0591-6.
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4. D.W. van der Weide, John Grade, Min Ki Choi, and Alan Bettermann, "THz Spectroscopic Detection with Electronic Techniques," *Proceedings of NATO Advanced Research Workshop: Terahertz Frequency Detection and Identification of Materials and Objects*, Spiez, Switzerland, 2006.
1. C. A. Paulson and D.W. van der Weide, "Near-field High Frequency Probing," in *Scanning Probe Microscopy*, S. Kalinin and A. Gruverman, Eds. New York: Springer-Verlag, 2007, pp. 315-345. <http://www.springerlink.com/content/p02166j771n03800/fulltext.pdf>
2. M.K. Choi, K. Taylor, A. Bettermann, and D.W. van der Weide, "Spectroscopy with Electronic Terahertz Techniques for Chemical and Biological Sensing," Chapter 2, Volume II. *Emerging Scientific Applications and Novel Device Concepts, Terahertz Sensing Technology*, Editors: D. L. Woolard, M. S. Shur and W. R. Loerop, World Scientific, 2003.
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4. D.W. van der Weide, "Electronic Sources and Detectors for Wideband Sensing in the Terahertz Regime," in *Sensing with terahertz radiation*, Vol. 85, Springer Series in Optical Sciences, D. M. Mittleman, Ed.: Springer, 2003.

## CONFERENCE PRESENTATIONS

### **PAPERS AWARDED PRIZES**

1. A. Day, M. Dwyer, D. van der Weide, "Millimeter-wave thickness-deviation measurement system," in 2020 IEEE Radio and Wireless Symposium (RWS) 2020, *First Prize Student Paper Competition*.
2. C.L. Brace, P. Laeseke, L.A. Sampson, T.M. Frey, D.W. van der Weide and F.T. Lee. "Principles of microwave ablation," RSNA 2005, *Educational Exhibit Certificate of Merit*.
3. T. Löffler, T. Pfeifer, H. G. Roskos, H. Kurz, and D.W. van der Weide, "Stable optoelectronic detection of free-running microwave signals with 150-GHz bandwidth," European Conference on Optical and Beam Probing, 1995. *Best poster award*.
4. D.W. van der Weide, "A YIG-tuned nonlinear transmission line multiplier," at IEEE MTT-S International Microwave Symposium, Atlanta GA, 1993. *Student paper contest award*.
5. D.W. van der Weide, "Thin-film YIG oscillators with low phase noise and high spectral purity," at IEEE MTT-S International Microwave Symposium, Albuquerque NM, 1992. *Student paper contest award*.

### **INVITED**

1. D.W. van der Weide, "Complex Modulation and Signal Recovery in High Frequency Measurements," [102<sup>nd</sup> ARFTG Microwave Measurement Symposium](#), San Antonio, TX, Jan 21-24, 2024.

2. D.W. van der Weide, "Ohm vs. Maxwell: Using electromagnetic fields as treatment modalities," Plenary invited speaker, European Computer Assisted Liver Surgery Society annual meeting, Oct. 17-19, 2019, Bern, Switzerland.
3. A. B. Kozyrev and D.W. van der Weide, "Prospects for Nonlinear Left-Handed Transmission Lines" invited presentation at Metamaterials 2007: The First International Congress on Advanced Electromagnetic Materials in Microwave and Optics, Rome, Italy, October 22-26, 2007.
4. D.W. van der Weide, John Grade, Min Ki Choi, and Alan Bettermann, "THz Spectroscopic Detection with Electronic Techniques," presented at NATO Advanced Research Workshop: Terahertz Frequency Detection and Identification of Materials and Objects, Spiez, Switzerland, 2006.
5. D.W. van der Weide and John Grade, "THz Antennas with Broadband Gain," presented at NATO Advanced Research Workshop: Terahertz Frequency Detection and Identification of Materials and Objects, Spiez, Switzerland, 2006.
6. D.W. van der Weide, "Materials contrast for electronic terahertz imaging," Spring MRS Meeting, San Francisco, CA, April 2006.
7. A. B. Kozyrev, H. Kim, A. Karbassi and D. W. van der Weide, "Higher Harmonic Generation and Parametric Instabilities in Left-Handed Nonlinear Transmission Lines", 2005 IEEE AP-S Int. Symposium and USNC/URSI National Radio Science Meeting, 3-8 July 2005, vol. 2B, pp. 209-212 (2005).
8. Interviewed about use of terahertz technology for counter-terrorism in a 30 minute show "Connect" on BBC Radio 4 by Julian Mayers, November, 2005.
9. A.B. Kozyrev, H.J. Kim, D.W. van der Weide, "Parametric gain and nonlinearities in mesoscopic media," presented at NPMS-7/SIMD-5, Maui, HI, November 28-Dec 2, 2005.
10. D.W. van der Weide, "Landscape of US THz initiatives," presented at Terahertz Sources and Systems for Security Use, Durham, UK, 2005.
11. F. Keilmann, M. Brehm, A. Schliesser, and D.W. van der Weide, "Novel FTIR Spectrometer Featuring Rapid Acquisition with a Coherent, Laser-Like Beam," presented at ICAVS-3, Lake Delavan WI, 2005.
12. D.W. van der Weide, "Stand-off detection with pulsed electronic THz systems," Joint Terahertz Imaging System Technology Assessment, Falls Church, VA, 31 August – 1 September 2005
13. D.W. van der Weide, M. Choi, K. Taylor, and A. Bettermann, "Sensing biomolecules with microwave and terahertz frequencies," presented at EMC Zürich, 2005.
14. X. Li, E. J. Bond, S. C. Hagness, B. D. Van Veen, and D. van der Weide, "Three-dimensional microwave imaging via space-time beamforming for breast cancer detection," IEEE Antennas and Propagation Society International Symposium and USNC/URSI Radio Science Meeting, San Antonio, TX, June 2002.
15. X. Li, E. J. Bond, S. Davis, M. Choi, P. Gustafson, S. C. Hagness, B. D. Van Veen, and D. van der Weide, "Computational and Experimental Investigations of Microwave Breast Cancer Detection via Space-Time Beamforming," 3rd World Congress on Microwave and Radio Frequency Applications, Sydney, Australia, September 22-26, 2002.
16. S. C. Hagness, X. Li, E. J. Bond, S. Davis, M. Choi, P. Gustafson, B. D. Van Veen, and D. van der Weide, "Microwave Imaging via Space-Time Beamforming for Breast Cancer Detection:

Experimental Studies using Breast Phantoms,” XXVIIth General Assembly of the International Union of Radio Science (URSI), Maastricht, The Netherlands, August 2002.

17. X. Li, S. C. Hagness, B. D. Van Veen, and D. van der Weide, “Experimental Investigation of Microwave Imaging via Space-Time Beamforming for Breast Cancer Detection,” accepted for presentation at the IEEE MTT-S International Microwave Symposium, Philadelphia, PA, June 2003.
18. X. Li, L. O. Palmer, S. C. Hagness, B. D. Van Veen, D. van der Weide, “Microwave breast cancer detection via space-time beamforming: A computational and experimental study of breast phantom and sensor design parameters,” accepted for presentation at the IEEE Antennas and Propagation Society International Symposium and USNC/URSI Radio Science Meeting, Columbus, OH, June 2003.
19. D.W. van der Weide, M. Choi, K. Taylor, and A. Bettermann, “Sensing biomolecules with microwave and terahertz frequencies,” presented at EMC Zurich, 2005.
20. D. van der Weide, K. Taylor, C. Paulson, D. Lagally, A. Karbassi, S. Ramachandran, B. Butler, and P. Gustafson, “SPM spectroscopy of biological and low-dimensional systems,” presented at New Phenomena in Mesoscopic Systems 6 Surfaces and Interfaces in Mesoscopic Devices 4, Maui, HI, 2003 (work presented by Prof. Robert Blick).
21. S. Bhattacharjee, J. H. Booske, C. L. Kory, D.W. van der Weide, S. Limbach, S. Gallagher, A. Stevens, M. Genack, J. Welter, M. Lopez, R. M. Gilgenbach, J. Wohlbier, R. L. Ives, M. E. Read, R. Divan, and D. C. Mancini, “Investigations of folded waveguide TWT oscillators for THz radiation,” presented at 4<sup>th</sup> IEEE International Conference on Vacuum Electronics, 2003.
22. D.W. van der Weide, “Terahertz systems for concealed weapons sensing,” *DSTL* Ft. Halstead, UK, 30 September 2003.
23. D.W. van der Weide, “Terahertz sensing for explosives detection,” *FOI-Sweden (Swedish Defense Agency)*, Linköping, Sweden, 29 August 2003
24. D.W. van der Weide, “Terahertz sensing technology,” *FFI-Norway (Norwegian Defense Agency)*, Oslo, Norway, 1 September 2003
25. D.W. van der Weide, “Spectroscopy with electronic terahertz techniques for chemical and biological sensing,” *Joint European Research Centre*, Ispira, Italy, 12 June 2003
26. D.W. van der Weide, “Detection of explosives, chemical and biological hazards with terahertz systems,” *Gordon Conference on Illicit Substance Detection: Explosives*, Il Ciocco, Barga, Italy, 8-13 June 2003.
27. D.W. van der Weide, “Detection of chemical and biological hazards with terahertz systems,” *The terahertz gap: the generation of far-infrared radiation and its applications*, Royal Society Scientific Discussion Meeting, London, England, 4-5 June, 2003.
28. D.W. van der Weide, “Detection of explosives with terahertz systems,” *Expert workshop on Explosive Detection Techniques for use in Mine Clearance and Security Related Requirements*, Lake Bled, Slovenia, 2-4 June, 2003.
29. Invited speaker at 27th Annual Great Lakes Biomedical Conference, “Applications of nanotechnology,” April 4, 2003.
30. K. Taylor and D.W. van der Weide, “Microwave sensing of protein conformation and binding,” presented at American Physical Society March Meeting, Austin TX, 2003.

31. D.W. van der Weide, "All electronic terahertz spectroscopy," 2003 OSA Ultrafast Electronic and Optoelectronic Topical Meeting, January 15-17, 2003, in Washington DC.
32. X. Li, E. J. Bond, S. Davis, M. Choi, P. Gustafson, S. C. Hagness, B.D. Van Veen, and D.W. van der Weide, "Computational and Experimental Investigations of Microwave Breast Cancer Detection via Space-Time Beamforming," presented at 3<sup>rd</sup> World Congress on Microwave and Radio Frequency Applications, Sydney, Australia, 2002.
33. D.W. van der Weide, "THz sensing and screening of biomolecules and bacteria," presented at Optical Society of America Annual Meeting, Orlando FL, 2002.
34. M. Friesen, P. Rugheimer, D. E. Savage, M. G. Lagally, D.W. van der Weide, R. Joynt, and M.A. Eriksson, "A SiGe Quantum Dot Quantum Computer," presented at 6<sup>th</sup> International Conference on Quantum Communication, Measurement and Computation, Boston MA, 2002.
35. M. Friesen, P. Rugheimer, D. E. Savage, M. G. Lagally, D.W. van der Weide, R. Joynt, and M.A. Eriksson, "A SiGe Quantum Dot Quantum Computer," presented at Quantum Device Technology Workshop, Potsdam, NY, 2002.
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37. D.W. van der Weide, "Local Electron Spin Probing with Microwaves: Interfacing to Quantum Dot Qubits in SiGe & A Route to High Power," presented at Solid State Quantum Computing (SSQC) Workshop, Yorktown Heights, NY, 2002.
38. D.W. van der Weide, K. Taylor, J. Peck, C. Wichaidit, S. Hagness, W. Cai, and R. Hamers, "Biomolecular Contrast Mechanisms and Sensing Techniques in the Terahertz Regime," presented at 9<sup>th</sup> International Conference on Terahertz Electronics, Charlottesville, 2001.
39. K. Taylor and D.W. van der Weide, "Sensing Folding of Solution Proteins with Resonant Antennas," presented at 9<sup>th</sup> International Conference on Terahertz Electronics, Charlottesville, 2001.
40. D.W. van der Weide, "Electronic terahertz systems for biodetection and bioimaging," at First International Conference on Biomedical Imaging & Sensing Applications of Terahertz Technology (BISAT '01), Leeds UK, 30 November-1 December 2001.
41. D.W. van der Weide, "Electronic THz Imaging of Explosives" Gordon Research Conference on Illicit Substances, New London CT, 8-13 July 2000.
42. D.W. van der Weide, "THz electronics" at NATO Advanced Research Workshop, Chateau de Bonas, France, 21-28 June 2000.
43. D.W. van der Weide, J. Murakowski, and F. Keilmann, "Spectroscopy with electronic THz techniques," at EurOpto '99, Munich, Germany, 1999.
44. D.W. van der Weide, "Microscopes for subvisible frequencies," at International Advanced Studies Institute, Science and Technology Series, Naval Postgraduate School, Monterey, CA, 1998.
45. D.W. van der Weide, "Electronic THz systems," at Optical Society Annual Meeting, Baltimore, MD, 1998.

46. V. Agrawal, T. Bork, S. Kee, and D.W. van der Weide, "Electronic THz reflection spectroscopy for detecting energetic materials," at *Sixth IEEE International Conference on Terahertz Electronics*, Leeds UK, 1998.
47. D.W. van der Weide, "Multifunctional scanned probes for localizing high frequency fields," at *APS March Meeting*, Los Angeles CA, 1998.
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49. D.W. van der Weide, "Terahertz spectroscopy of energetic materials," presented at Ignition and Combustion Branch, Propulsion and Flight Division, Weapons and Materials Directorate, Army Research Laboratory, Aberdeen, MD, 1997.
50. D.W. van der Weide, "Technology and applications of electronic terahertz systems," at Workshop on New Sources and Detectors for the Terahertz Regime, Institut für Halbleitertechnik, RWTH Aachen, Germany, 1996.
51. D.W. van der Weide and P. Neuzil, "The nanoscilloscope: Combined topography and AC field probing with a micromachined tip," at Third Workshop on Industrial Applications of Scanned Probe Microscopy, NIST, Gaithersburg MD, 1996.
52. D.W. van der Weide, "THz spectroscopy using nonlinear transmission lines," at International Workshop on Novel Terahertz Technology, Ministry of Post and Telecommunication, Kobe, Japan, 1995.
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### ***SELECTED SEMINARS, REVIEWS, AND WORKSHOPS***

- D.W. van der Weide, “Multidimensional modulation formats for covcom,” in UW–Madison Cyber Research Forum with U.S. Cyber Command, Addressing Key Issues in Digital Defense, Nov 21, 2024.
- D.W. van der Weide, “Entrepreneurial journey,” in UW–Madison Morgridge Entrepreneurial Bootcamp, June 5, 2024.
- D.W. van der Weide, “Outlook for detecting explosive and biological hazards with terahertz systems,” in GTI Laboratory Journal Europe, 2006.
- D.W. van der Weide, “Molecular-scale bioelectronic interfaces: How will microelectronics and molecular-scale biology converge?” Presentation at University of Rochester, Rochester NY, April 7, 2006.
- D.W. van der Weide, “Stand-off detection with pulsed electronic THz systems,” Joint Terahertz Imaging Systems Technology Assessment Conference, Falls Church VA, Aug. 31, 2005.
- D.W. van der Weide, “Making RFID Mainstream,” Wisconsin Technology Network, September 2005.
- D.W. van der Weide, S. Ramachandran, and P. Gustafson, “Microwave measurement of single alpha-hemolysin activity,” Biophysical Society Annual Meeting, San Antonio TX, 2003.
- K. Taylor and D.W. van der Weide, “Microwave sensing of protein conformation and binding,” Biophysical Society Annual Meeting, San Antonio TX, 2003.
- D.W. van der Weide, “Solid State Quantum Computing using Nanostructured Logic Gates: Clocking and Probing with Microwaves,” Invited Quantum Information Sciences Seminar, University of Illinois, Urbana-Champaign, October 9, 2002.
- D.W. van der Weide, “Short pulse generation and measurement approaches for spectroscopy and (bio)sensing,” Invited seminar, Agilent Laboratories, Palo Alto, CA, May 2002.
- D.W. van der Weide, “Near field probing of biomolecules,” Invited seminar, Agilent Technologies, Santa Rosa CA, May 2002.
- D.W. van der Weide, “Short pulse generation and measurement approaches for spectroscopy and (bio)sensing,” Invited seminar, Lawrence-Livermore National Laboratory, January 7, 2002.
- D.W. van der Weide, “Terahertz Interactions with Molecules, both Real and Artificial,” Physical Chemistry Seminar, University of Wisconsin-Madison, October 3, 2000.

## SELECTED PATENTS

(use [\(Dan\\*\) inventor:\(van der Weide,\)](#) - [Google Patents](#) for a more complete list >80 total)

|    | PAT. NO.  | Title                                                                                                  |
|----|-----------|--------------------------------------------------------------------------------------------------------|
| 17 | 7,768,458 | <a href="#">Systems, methods and devices for improved imaging</a>                                      |
| 16 | 7,725,151 | <a href="#">Apparatus and method for near-field imaging of tissue</a>                                  |
| 15 | 7,691,298 | <a href="#">Plastic cantilevers for force microscopy</a>                                               |
| 14 | 7,467,015 | <a href="#">Segmented catheter for tissue ablation</a>                                                 |
| 13 | 7,368,305 | <a href="#">High aspect ratio micromechanical probe tips and methods of fabrication</a>                |
| 12 | 7,345,610 | <a href="#">High speed digital-to-analog converter</a>                                                 |
| 11 | 7,244,254 | <a href="#">Air-core microwave ablation antennas</a>                                                   |
| 10 | 7,183,055 | <a href="#">Direct radio-frequency detection of nucleotide hybridization at microelectrodes</a>        |
| 9  | 7,179,587 | <a href="#">Method and apparatus for high frequency interfacing to biochemical membranes</a>           |
| 8  | 7,146,282 | <a href="#">Mechanical force detection of magnetic fields using heterodyne demodulation</a>            |
| 7  | 7,135,917 | <a href="#">Left-handed nonlinear transmission line media</a>                                          |
| 6  | 6,845,655 | <a href="#">Heterodyne feedback system for scanning force microscopy and the like</a>                  |
| 5  | 6,801,029 | <a href="#">Microwave dielectric spectroscopy method and apparatus</a>                                 |
| 4  | 6,649,402 | <a href="#">Microfabricated microbial growth assay method and apparatus</a>                            |
| 3  | 6,597,010 | <a href="#">Solid-state quantum dot devices and quantum computing using nanostructured logic gates</a> |
| 2  | 5,936,237 | <a href="#">Combined topography and electromagnetic field scanning probe microscope</a>                |
| 1  | 5,748,309 | <a href="#">Coherent periodically pulsed radiation spectrometer</a>                                    |