

FRANCESCO SIMONETTI, PH. D.

PROFESSOR

DEPARTMENT OF AEROSPACE ENGINEERING AND ENGINEERING MECHANICS
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EMPLOYMENT

Aug. 2018- Current	University of Cincinnati – Professor. College of Engineering and Applied Science, Department of Aerospace Engineering and Engineering Mechanics
March 2011- Aug. 2018	University of Cincinnati – Associate Professor (Tenured). College of Engineering and Applied Science, Department of Aerospace Engineering and Engineering Mechanics
Jan. 2013 – Jan.2023	Cincinnati NDE, ltd. – Chief Executive Officer. A startup company from the University of Cincinnati
Feb. 2007 – March 2011	Imperial College London – Assistant Professor. Department of Mechanical Engineering (permanent position in the UK)
June 2006 – Nov 2010	Los Alamos National Laboratory – Faculty Affiliate. Earth and Environmental Sciences Division
Aug. 2005 – July 2010	Royal Academy of Engineering – Research Fellow. A competitive five-year fellowship award funded by the Academy and EPSRC
Jan. 2004 – July 2005	Imperial College London – Research Associate. The position was held with the Non-destructive Testing Group

EDUCATION

Jan. 2004	Ph.D., Mechanical Engineering. Imperial College London. Dissertation: <i>‘Sound propagation in lossless waveguides coated with attenuative materials’</i>
Apr. 2001 – Sept. 2002	M.Phil., Mechanical Engineering. Imperial College London
Feb. 2000 – Jan. 2001	Military Service. Compulsory in Italy until 2003
Sept. 1994 – Oct. 1999	M. Sc., Aeronautical Engineering. 110/110 Laurea magna cum laude, University of Palermo, Italy (five-year degree program)

PROFESSIONAL ACTIVITIES AND INTERNATIONAL STANDING

Honours and Awards

- **Professor Fellowship**, Japan Society for the Promotion of Science (JSPS) 2023, JAPAN
- **Professor Fellowship**, Japan Society for the Promotion of Science (JSPS) 2019, JAPAN
- **CEAS Distinguished Researcher Award**, University of Cincinnati 2018, USA
- **Wave Motion Highly Cited Research Award**, Elsevier, 2016
- **CEAS Research Award for Young Faculty**, University of Cincinnati 2013, USA
- **Cum Laude Poster Award**, SPIE Medical Imaging 2010 Symposium, San Diego, USA
- **Honourable Mention Poster Award**, SPIE Medical Imaging 2008 Symposium, San Diego, USA
- **Rector’s Research Excellence Award**, Imperial College, 2007, UK
- **Honourable Mention Poster Award**, SPIE Medical Imaging 2007 Symposium, San Diego, USA

- **Research Fellowship**, Royal Academy of Engineering / EPSRC, 2005, UK
- **First Prize**, Annual QNDE Student Poster Competition 2003 Green Bay, Wisconsin, USA

Editorial role

- Associate editor for IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control 2014 - 2020
- Associate editor for Ultrasonics 2011- 2012

Service for Research Councils

- National Science Foundation Review Panel since 2015
- Research proposal reviewer for the Army Research Office since 2014
- Research proposal reviewer for Research Grant Council (RGC) of Hong Kong and National Natural Science Foundation of China (NSFC) since 2013
- Research proposal reviewer for the UK Engineering and Physical Sciences Research Council since 2010
- Research proposal reviewer for the Swiss National Science Foundation since 2010

Journal Referee

- Physical Review A, E
- Physical Review Letters
- Proceedings of the Royal Society of London
- Applied Physics Letters
- Journal of Applied Physics
- Journal of the Acoustical Society of America; Author of the review of the book entitled '*Ultrasonic Nondestructive Evaluation Systems*'
- Journal of Sound and Vibrations
- IEEE Transactions on Ferroelectrics and Frequency Control
- IEEE Transactions on Medical Imaging
- Wave Motion
- Structural Health Monitoring
- Journal of Nondestructive Evaluation
- Ultrasonics

Conference Chairman

- Imaging and Inversion Techniques Session at the annual QNDE conference, 17-22 July 2011, Burlington, Vermont, US
- Imaging Session at the annual conference of the British Institute of Non-destructive Testing, 12-14 Sept. 2006, Stratford-upon-Avon, UK
- Structural Health Monitoring Session at the annual QNDE conference, 25-30 July 2004, Golden, Colorado, US

Invited talks

Conferences

- **Lecture** – Japanese Society for Nondestructive Inspection Symposium” Tokyo, Japan, 7 Jun. 2023, “Cryo-ultrasonic imaging of curved components”
- **Lecture** – ASTM International Conference on Additive Manufacturing” Anaheim, CA, 31 Oct. 2021, “Cryo-ultrasonic Testing: Ultrasonic inspection under ice encapsulation”
- **Lecture** – TMS 2014, 143rd Annual Meeting, San Diego CA, 20 Feb. 2014, “Ultrasonic computerized tomography of pipelines for continuous monitoring of corrosion and erosion damage”
- **Lecture** – Joint ASME and AIAA Professional Section Dinner Meeting, 6 Feb. 2013, “An Ultrasonic Window into the Sub-surface World”

- **Lecture** – Royal Academy of Engineering Annual General Meeting, 5 July 2010, “Imaging the Sub-surface World”
- **Lecture** – Royal Academy of Engineering Research Forum, 19 Sep. 2008, “Super resolution imaging of the Sub-surface World”
- **Lecture** – Bioengineering 2008, 18 Sep. 2008, “Narrowing the resolution gap between ultrasound imaging and X-ray CT”
- **Plenary** – Review of Progress in Quantitative Nondestructive Evaluation, 21 July 2008, Chicago USA. “Modern ultrasound imaging: An exciting window into the sub-surface world”
- **Lecture** – Workshop on Forward and Inverse Scattering, 23 June 2008, Manchester UK. “Inverse scattering in modern ultrasound imaging: From super resolution to breast tomography”
- **Lecture** – Biomedical Engineering and Informatics, 28 May 2008, Sanya China. “Transmission and reflection tomography in breast imaging”
- **Keynote** – Quatriemes Journees Du GDR, 17 May 2006, Giense, France. “Can the subwavelength world be unravelled from far-field measurements?”
- **Lecture** – Ultrasonics International, 30 June 2003, Granada, Spain. “On the nature of guided wave propagation in elastic plates coated with viscoelastic materials”

Research Institutions

- **Tohoku University** 25 July 2023 – Making waves in ice”
- **Osaka University** 23 July 2019. “Cryo-ultrasonic Testing: The icy inspection of complex-geometry components ”
- **Penn State** 13 Mar. 2019. “Making waves in ice”
- **Air Force Research Lab** 7 Aug. 2018. “Cryoultrasonic NDE”
- **Osaka University** 7 July 2014. “Model-based inversion of ultrasonic data: From breast cancer detection to corrosion monitoring”
- **GE Research Center** 19 Sept. 2014. “Model-based inversion of ultrasonic data: From breast cancer detection to corrosion monitoring”
- **Ecole Polytechnique Federale de Lausanne** 11 March 2010. “The unraveling of complexity in sub-surface imaging”
- **Fresnel Institute** 26 Nov. 2009. “Modern ultrasound imaging: An exciting window into the sub-surface world”
- **University of Bath** 11 Sep. 2008. “A modern perspective on ultrasound imaging: From super resolution to breast cancer detection”
- **University of Nottingham**, 04 June 2008. “On the encoding of subwavelength information by multiple scattering”
- **University of Oxford**, 27 Feb 2008. “Inverse scattering in modern ultrasound imaging: From super resolution to breast tomography”
- **University of Strathclyde**, 22 Nov 2006. “Imaging Beyond the Diffraction Limit to Unravel the Subwavelength World”
- **Northeastern University**, 7 Nov 2006. “Imaging Beyond the Diffraction Limit to Unravel the Subwavelength World from Far Field Measurements”
- **Massachusetts Institute of Technology**, 6 Nov 2006. “Imaging Beyond the Diffraction Limit to Unravel the Subwavelength World from Far Field Measurements”
- **Karmanos Cancer Institute, Wayne State University**, 10 Oct. 2006. “Pushing the boundaries of ultrasound imaging to unravel the subwavelength world”
- **Los Alamos National Laboratory**, 12 July 2006. “Can the subwavelength world be unravelled from far-field measurements?”
- **University of Bordeaux (LMP)**, 11 June 2004. “Ultrasonic NDT: current practice and challenges”
- **University of Cincinnati**, 21 Nov. 2003. “Ultrasonic guided waves in NDE”

RESEARCH GRANTS

FA8650-20-1-5201-PI
AFRL/RX Structural Materials Open BAA

Apr 23 – Jun. 26
USD 418,689

Cryo-ultrasonic testing

Extension of previous AFRL/RX award to continue the development of Cryo-ultrasonic NDE.

2029111-PI
NSF

Jan 21 – Dec. 23
USD 149,846

Particle Reinforced Ice as a Tunable Acoustic Couplant

This project investigates experimental methods to produce a particulate reinforced material consisting of solid particles embedded in an ice matrix. The objective is to develop a new material that can be used to conduct ultrasonic nondestructive testing of complex shape engineering components such as those produced with additive manufacturing methods.

FA8650-20-1-5201-PI
AFRL/RX Structural Materials Open BAA

Apr 20 – Jun. 23
USD 419,702

Cryo-ultrasonic testing

The goal is to develop advanced analytical tools for the interpretation of the ultrasonic signals measured for complex structures encased in ice and to determine the range of geometries that can be inspected with cryo-ultrasonic testing. In addition, the project will lead to the formulation of practical NDE guidelines for cryo-ultrasonic testing.

Basic Research - PI
GE Aviation

Aug 19 – Dec. 19
USD 35,899

Cryo-UT Evaluation

A study into the feasibility of inspecting additive manufacturing parts using cryo-ultrasonic testing which is a new approach that overcome the limitations of conventional immersion testing by freezing components in blocks of crystal clear ice..

AFLCMC14-12.b-P-0020-PI
AFRL-UES

Jan 16 – Dec. 18
USD 348,315

NDE methods for additive manufacturing

This work is in collaboration with UES and explores a novel NDE method based on the integration of acoustic microscopy with the very process of additive manufacturing. The aim is to detect defects in a part regardless of its complex shape.

NPRP8-380-2-161- Lead PI
Qatar National Research Fund

Feb 16 – Jan. 19
USD 806,636

Corrosion and erosion monitoring with computerized tomography

Continuous monitoring of damage in pipelines is essential for the cost-effective operation of upstream and downstream assets. This project aims at developing an innovative technology that combines tomographic techniques with guided ultrasonic waves to map wall thickness losses in complex pipe sections such as elbows.

Basic research – PI
GE Aviation

Feb. 16 – Dec. 16
USD 99,826

Detection and characterization of waviness in polymer matrix composites: Phase II

Polymer matrix composite (PMC)s are widely used to manufacture the blades of engine fans. The aim of this study is to explore the use of phased array technology for the detection and characterization of waviness defects in PMC components as an alternative to the currently used x-ray CT, the latter has limitations in terms of characterization of the extent of the waviness.

N13A-021-0193 – Co-PI
DOD STTR- Faraday Technologies Inc.

July 15 – Feb. 16
USD 64,000

Additive manufacturing for the development of efficiently cooled heat exchangers

An initial study into the feasibility of developing an integrated computational material engineering (ICME) toolbox that can enable improved heat exchangers designs. The effort is based on a collaboration between Faraday Technology Inc, NC State, CalRAM and UES. UC will develop the nondestructive testing aspect of the technology.

Basic research – PI April 15 – Dec. 15
GE Aviation USD 104,300

Method to inspect CMC panels for quality control at manufacture

Ultrasonic transmission measurements are used to correlate ultrasonic attenuation maps to the mechanical strength of the material in a non-destructive fashion.

Basic research – PI June 15 – Dec. 15
GE Aviation USD 150,000

Detection and characterization of waviness in polymer matrix composites

Polymer matrix composite (PMC)s are widely used to manufacture the blades of engine fans. The aim of this study is to explore the use of phased array technology for the detection and characterization of waviness defects in PMC components as an alternative to the currently used x-ray CT, the latter has limitations in terms of characterization of the extent of the waviness.

Basic research – PI Jan. 15 – Dec. 15
GE Aviation USD 152,000

NDE technology for ceramic matrix composite materials:

Phase IV

GE Aviation has pioneered a new breed of ceramic matrix composite (CMC) materials which outperforms the super alloys used in current, state-of-the-art engine technology. This program develops new nondestructive evaluation methods to better understand damage formation and progression, and for the inspection of components once they enter service.

Basic research – PI Jan. 14 – Dec. 14
GE Aviation USD 365,000

NDE technology for ceramic matrix composite materials:

Phase III

GE Aviation has pioneered a new breed of ceramic matrix composite (CMC) materials which outperforms the super alloys used in current, state-of-the-art engine technology. This program develops new nondestructive evaluation methods to better understand damage formation and progression, and for the inspection of components once they enter service.

Basic Research – PI June 13 – Dec. 13
Electric Power Research Institute USD 19,987

Data processing algorithms for inspection of cast austenitic stainless steel: Phase II

Accurate size of defects is critical to assess the integrity of safety critical components in the nuclear industry. This program assesses the feasibility of super resolution imaging in austenitic steel that is commonly used in nuclear plants.

Basic research – PI Mar. 13 – Dec. 13
GE Aviation USD 320,000

NDE technology for ceramic matrix composite materials:

Phase II

GE Aviation has pioneered a new breed of ceramic matrix composite (CMC) materials which outperforms the super alloys used in current, state-of-the-art engine technology. This program develops new nondestructive evaluation methods to better understand damage formation and progression, and for the inspection of components once they enter service.

- Basic Research – PI
Electric Power Research Institute
Data processing algorithms for inspection of cast austenitic stainless steel: Phase I
Accurate size of defects is critical to assess the integrity of safety critical components in the nuclear industry. This program assesses the feasibility of super resolution imaging in austenitic steel that is commonly used in nuclear plants.
- June 12 – Dec. 12
USD 25,000
- Basic research – Co-I
GE Aviation
Aeromechanic modelling
Blade vibrations in jet engine turbine can be a major cause of failure due to the development of fatigue damage. To mitigate this problem attenuative coatings are deposited on the blades. The objective of this study is to assess the effectiveness of the coatings by developing a testing methodology to study blade vibrations in the nonlinear regime.
- Sept. 12 – Dec. 12
USD 80,000
- Basic research – PI
GE Aviation
NDE technology for ceramic matrix composite materials: Phase I
GE Aviation has pioneered a new breed of ceramic matrix composite (CMC) materials which outperforms the super alloys used in current, state-of-the-art engine technology. This program develops new nondestructive evaluation methods to better understand damage formation and progression, and for the inspection of components once they enter service.
- June 12 – Nov. 12
USD 227,000
- StG-2010 260668 – PI
European Research Council
Breast ultrasound tomography for the early detection of cancer
The objective is to build a cutting-edge clinical prototype for automated, full volume breast tomography. The prototype is based on a new class of image formation algorithms developed by Dr Simonetti. Ultrasound tomography could achieve higher sensitivity and specificity than conventional mammography, thus paving the way for a new gold standard in breast cancer screening.
- Jan. 10 – Dec. 15
EUR 1,500,000
- EP/H040072 – PI
EPSRC (Engineering and Physical Sciences Research Council),
Shell, Petrobras.
Guided wave tomography for accurate corrosion mapping
Various thickness gauging devices are commercially available. However, the need for scanning a probing sensor across the area to be inspected limits their applicability when the area is not directly accessible, e.g. pipelines at supports. This proposal will develop a new technology for accurate depth characterization of corrosion or erosion damage from a remote transducer location.
- July 10 – June 13
GBP 368,000
- EP/F00947X/1 – PI
EPSRC (UK Engineering and Physical Sciences Research Council)
Imaging beyond the Born approximation: A physical approach
The aim is to pursue the development of a cutting-edge imaging technology which could lead to unprecedented resolution in the fields of medical diagnostics and geophysical exploration. This is being attempted in a physical framework that goes beyond the Born approximation and takes full advantage of the mechanisms that govern wave scattering.
- July 08 – June 11
GBP 301,000
- Equipment Grant – PI
BP
Microwave detection of corrosion under insulation
Corrosion under insulation (CUI) is a significant source of pipeline failure in the oil and gas industry. This project uses the structure of an insulated pipeline as a waveguide that supports the
- Jan. 08 – Dec. 10
GBP 150,000

propagation of microwave within the insulation. Microwave radiation can then be used to detect the presence of water, a necessary precursor to CUI. The grant is aimed at setting up a Microwave laboratory.

Research Fellowship – PI
Royal Academy of Engineering / EPSRC, UK

Aug. 05 – July 10
GBP 314,000

Super resolution subsurface sensing

The main goal of the fellowship is to develop the fundamental science of subwavelength resolution imaging with application to subsurface sensing. In particular, the objective is to break the classical diffraction limit that dictates a fundamental trade-off between the maximum achievable image resolution and the depth at which this can be obtained.

EP/HO45430/1 – Co-I
EPSRC, UK.

Aug. 10 – July 15
GBP 1,200,000

Platform grant renewal

This is for the continuation of the previous renewal. The ultimate goal of this research is to advance current ultrasound imaging to complement conventional structural images with quantitative images that can reveal spatial distribution of material properties. We propose to explore how this complementary information can be used to improve medical diagnostics and damage detection in NDE.

EP/G050309/1 – Co-I
EPSRC, Shell, British Energy, E-ON, UK.

Jan 09 – May 12
GBP 341,000

Sub-wavelength characterization of defects in inaccessible regions using guided waves

Guided ultrasonic waves are routinely used for the long range detection of corrosion in pipes. However, current technology cannot provide accurate information about the defect characteristics. The objective of this project is to combine super resolution imaging with guided wave technology to facilitate defect characterization and sizing.

EP/F017332/1 – Co-I
EPSRC, UK

Apr. 08 – Mar. 14
GBP 2,840,575

UK research centre in NDE

The prime aim of the Centre is to conduct world-class research in NDE and related fields. The Centre is a collaboration between six universities and 14 large, end-user companies plus a number of smaller, associate members. The work led by Dr Simonetti is aimed at developing advanced, ultrasound based imaging algorithms for accurate defect sizing.

EP/C526406/1 – Researcher Co-I
EPSRC, UK.

Aug 05 – July 10
GBP 425,000

Platform grant renewal

The grant provides leading research groups with flexible support for retaining key staff and carrying out feasibility studies. The chief objectives of this program are to enable the group to expand into two new areas where there are big opportunities for growth: imaging, led by Dr Simonetti, and structural health monitoring (SHM).

TEACHING

2019 - 2020	Introduction to Vibrations. Undergraduate course taught at the University of Cincinnati, AEEM 5058 (19SS, 20SS)
2015 – Current	Solid Mechanics I. Undergraduate course taught at the University of Cincinnati, AEEM 4052 (16SS, 20SS, 21SS, 22 SS, 23 SS)
2015 – Current	Aerospace Structures and Materials. Undergraduate course taught at the University of Cincinnati, AEEM 5058 (15FS, 16FS, 17FS, 18 FS, 19 FS, 20 FS, 21 FS, 22 FS)

2013 – 2014	Mechanics of Solids. Undergraduate course taught at the University of Cincinnati, AEEM 4052 (14FS)
2013 – 2014	Computational Mechanics. Undergraduate course taught at the University of Cincinnati, AEEM 3062 (14SS)
2013 – 2014	Engineering Measurements. Undergraduate course taught at the University of Cincinnati, AEEM 2052 (13US)
2011 – 2012	Vibrations. Undergraduate course taught at the University of Cincinnati, AEEM 3520 (12W, 12S)
2011 – Current	Ultrasonic Nondestructive Evaluation. Graduate course taught at the University of Cincinnati, AEEM 7028 (12SS, 14SS, 15SS)
2011 – 2012	Mechanics of Structures. Graduate course taught at the University of Cincinnati, AEEM 6810 (11A)
2007 – 2008	Solid Mechanics. Undergraduate course taught at Imperial College
2006 – 2011	Machine System Dynamics. Undergraduate course taught at Imperial College
2005 – 2011	Stress Analysis. Undergraduate course taught at Imperial College

STUDENT SUPERVISION

Ph.D. Students

2014 – 2017	Alex Brath. (UC) Dissertation: ' <i>Advanced techniques for ultrasonic imaging in the presence of material and geometrical complexity</i> '; won First place at QNDE Student Poster Competition, 2013.
2012 – 2017	Jorge Quintero Badillo. (UC) Dissertation: ' <i>Non-destructive evaluation of Ceramic Matrix Composites at high temperature using laser ultrasonics</i> '
2011 – 2016	Carson Willey. (UC) Dissertation: ' <i>Ultrasonic guided wave tomography for wall thickness mapping in pipes</i> '
2008 – 2012	Peter Huthwaite. (Imperial) Dissertation: ' <i>Quantitative imaging with mechanical waves</i> '
2008 – 2012	Tim Hutt. (Imperial) Dissertation: ' <i>Towards next generation ultrasonic imaging</i> '
2007 – 2012	Robin Jones. (Imperial) Dissertation: ' <i>Use of microwave for the detection of corrosion under insulation</i> '
2007 – 2011	Andrew Conner. (Imperial) Dissertation: ' <i>Automated analysis of non destructive evaluation data</i> '
2005 – 2008	Matthew Fleming. (Imperial) Dissertation: ' <i>Far -field Super resolution imaging</i> '; won First place at QNDE Student Poster Competition 2005
2004 – 2007	Ken Ma. (Imperial) Dissertation: ' <i>Guided wave detection of blockage inside pipelines</i> '; won First place at QNDE Student Poster Competition, 2006

M.Sc. Students

2021-2023	Kaden Wells. (UC) <i>Frozen Alumina/Water Nanofluid Used as an Ultrasonic Couplant for Nondestructive Testing of Complex Shaped Components</i>
2016-2017	Isaak Satow. (UC) ' <i>An Investigation of Nondestructive Ultrasonic</i>

Inspection Techniques to Detect Defects in Additive Manufactured Aerospace Vehicle Components with Complex Geometry'

- 2016- 2017** **Stephen Higgins.** (UC) '*Modeling the Coupling of the Fundamental Flexural Mode Between Two Parallel Plates Separated by a Water Layer*'
- 2012 - 2014** **Sai Munesh Bejjavarapu.** (UC). '*An Experimental Model for Guided Microwave Backscattering from Wet Insulation in Pipelines*'
- 2012 - 2013** **Alicia Zwiebel.** (UC). '*Limited View Sound Speed Imaging for Breast Cancer Detection*'
- 2011 - 2012** **Nataraj Jonnalagadda.** (UC). '*The Use of Short Time Fourier Transform to Improve the Arrival Time Estimation in Ultrasonic Guided Wave Tomography*'
- 2010 – 2011** **Ugwumdinachi Onuzo.** (Imperial). '*A Microwave Sensor for Monitoring the Level of Steel in the Continuous Casting Process*'
- 2007 – 2008** **Bastien Durand.** (Imperial). '*Analysing the Reflection due to a Droplet on a Plate*'; won Unwin Prize Award

Co-op Students

- 2019** **Ethan Sanders (UC)** One semester
- 2019** **Dylan Roach (UC)** One semester
- 2018** **Kaden Wells (UC)** One semester
- 2018** **Michael Fox (UC)** One semester
- 2017-2018** **Roane Holpp (UC)** One semester
- 2017-2018** **Kaden Wells (UC)** One semester
- 2014-2015** **Isaak Satow (UC)** Two semesters
- 2014-2015** **Nanette Valentour (UC)** Two semesters
- 2013-2014** **Alexander Brath (UC)** Two semesters. Won First place at QNDE Student Poster Competition 2013
- 2013-2014** **Jennifer French (UC)** Two semesters

ACADEMIC COMMITTEES AND OTHER SERVICES AT UC

Department

- 2022** **Department RPT Committee:** Chair
- 2021** **Faculty Search Committee:** Chair
- 2019** **Faculty Search Committee:** Chair
- 2019-2021** **Department Head Search Committee:** Member
- 2018 - 2020** **Department RPT Committee:** Member
- 2018 - 2019** **Faculty Chair**
- 2017 - 2018** **Publicity committee.** Member
- 2016 - 2017** **Faculty Chair**
- 2015 - 2018** **Undergraduate committee.** Member
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2014 - 2020	Budget committee. Member
2011 - Current	Graduate committee. Member
2011 – 2016	Strategic planning committee. Chair

College

2019 - 2022	College RPT Committee: Member
2014 - 2015	Cluster hiring Committee. Member of the sensing committee
2014 -	Institute of Materials Science and Engineering Committee. Member

University

2018 - 2020	Office of Research Advisory Board. Member
2014	LEAF for women faculty in STEM. Reviewer of proposals

PUBLICATIONS

Citation statistics as of Aug 2023

Source	h-index	Total citations
Web of Science	25	1870
Scopus	26	2170
Google Scholar	30	3211

Patents

1. Measuring wall thickness loss for a structure; US Patent Number: **9,689,671** , and US Patent Application: **15/632,725**
2. Ultrasonic imaging of an elongate device penetrating an object; Publication Number **WO 2008/020157**

Book Chapters

F. Simonetti. Novel ultrasound imaging applications, *Springer Series in Materials Science*, **166**, 115-139, 2013.

Refereed Journal Papers

1. **F. Simonetti.** Cryo-ultrasonic imaging of curved components, *J. Japanese Soc. NDI*, **73**, 78-84, 2024
2. T Kawabata, T Hayashi, **F Simonetti.** Ice-enhanced thermoelastic excitation of ultrasonic waves, *Appl. Phys. Lett.*, **124**, 052202, 2024
3. F. Ghanbari, E. G. Rodriguez, D. Millan, **F. Simonetti**, A. P. Arguelles, and C. Peco. Modeling of wave propagation in polycrystalline ice with hierarchical density gradients, *Finite Elements in Analysis and Design*, **217**, 103916, 2023.
4. **F. Simonetti.** Cryo-ultrasonic testing of curved components, *NDT & E International*, **137**, 102835, 2023.
5. **F. Simonetti** and M. D. Uchic. Equiaxed Polycrystalline Ice for Ultrasonic Testing of Solids, *Phys. Rev. Applied*, **18**, 014034, 2022.
6. **F. Simonetti** and M. Y. Alqaradawi. Guided ultrasonic wave tomography of a pipe bend exposed to environmental conditions: A long-term monitoring experiment, *NDT & E International*, **105**, 1-10, 2019.
7. **F. Simonetti** and M. Fox. Experimental methods for ultrasonic testing of complex-shaped parts encased in ice, *NDT & E International*, **103**, 1-11, 2019.

8. **F. Simonetti**, I.L.Satow, A.J. Brath, K.C. Wells, J. Porter, B. Hayes, K. Davis. Cryo-ultrasonic NDE: Ice-cold ultrasonic waves for the detection of damage in complex-shaped engineering components, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **65**, 638-647, 2018.
9. A.J. Brath, **F. Simonetti**. Phased array imaging of complex-geometry composite components, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **64**, 1573-1582, 2017.
10. A.J. Brath, **F. Simonetti**, P.B. Nagy, G. Instanes. Guided wave tomography of pipe bends, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **64**, 847-857, 2017.
11. A.J. Brath, **F. Simonetti**, P.B. Nagy, G. Instanes. Experimental validation of a fast forward model for guided wave tomography of pipe elbows, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **64**, 859-871, 2017.
12. R. Quintero, **F. Simonetti**, P. Howard, J. Friedl, A. Sellinger. Noncontact laser ultrasonic inspection of ceramic matrix composites (CMCs), *NDT & E International*, **88**, 8-16, 2017.
13. C.L. Willey and **F. Simonetti**. A two-dimensional analysis of the sensitivity of a pulse first break to wave speed contrast on a scale below the resolution length of ray tomography, *J. Acoust. Soc. Am.*, **139**, 3145-3158, 2016.
14. S.M. Vejjavarapu and **F. Simonetti**. An experimental model for guided microwave backscattering from wet insulation in pipelines, *J. Nondestructive Evaluation*, **33**, 583-596, 2014.
15. P.B. Nagy, **F. Simonetti**, G. Instanes. Corrosion and erosion monitoring in plates and pipes using constant group velocity Lamb wave inspection, *Ultrasonics*, **54**, 1832-1841, 2014.
16. C.L. Willey, **F. Simonetti**, P.B. Nagy, G. Instanes. Guided wave tomography of pipes with high-order helical modes, *NDT & E International*, **65**, 8-21, 2014.
17. A.J. Brath, **F. Simonetti**, P.B. Nagy, G. Instanes. Acoustic formulation of elastic guided wave propagation and scattering in curved tubular structures, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **61**, 815-829, 2014.
18. R. Quintero and **F. Simonetti**. Rayleigh wave scattering from sessile droplets. *Phys. Rev. E*, **88**, 043011 1-13, 2013.
19. P. Huthwaite, **F. Simonetti**. High-resolution guided wave tomography, *Wave Motion*, **50**, 979-993, 2013.
20. P. Huthwaite, A. A. Zwiebel, **F. Simonetti**. A new regularization technique for limited-view sound-speed imaging, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **60**, 603-613, 2013.
21. P. Huthwaite, **F. Simonetti**, N. Duric. Combining time of flight and diffraction tomography for high resolution breast imaging: Initial in-vivo results, *J. Acoust. Soc. Am.*, **132**, 1249-1252, 2012.
22. P. Huthwaite and **F. Simonetti**. Modelling the measurement of ultrasonic beams transmitted through a penetrable acoustic cone, *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **59**, 2292-2303, 2012.
23. R. E. Jones, **F. Simonetti**, M.J.S. Lowe, I.P. Bradley. The effect of Bends on the long-range microwave inspection of thermally insulated pipelines for the detection of water *J. Nondestructive Evaluation*, **31**, 117-127, 2012
24. R. E. Jones, **F. Simonetti**, M.J.S. Lowe, I.P. Bradley. Use of microwaves for the detection of water as a cause of corrosion under insulation *J. Nondestructive Evaluation*, **31**, 65-76, 2012.
25. P. Huthwaite and **F. Simonetti**. High-resolution imaging without iteration: A fast and robust method for breast ultrasound tomography, *J. Acoust. Soc. Am.*, **130**, 1721-1734, 2011.
26. T. Hutt and **F. Simonetti**. Reconstructing the shape of an object from its mirror image, *J. Appl. Phys.*, **108**, 064909 1-11, 2010.
27. P. Belanger, P. Cawley, **F. Simonetti**. Guided Wave Diffraction Tomography within the Born Approximation *IEEE Trans. Ultrason. Ferroelect. Freq. Cont.*, **57**: 1405-1418, 2010.
28. **(Invited)** T. Hutt and **F. Simonetti**. Reconstructing the back of a defect from its mirror image,

Insight, **52**: 82-86, 2010.

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