

Sean Victor Hum – Curriculum Vitae

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and Computer Engineering
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RANK

PROFESSOR, tenured, full-time

Eugene V. Polistuk Chair in Electromagnetic Design

Date of original appointment as assistant professor: September 1, 2006

Date of promotion to associate professor with tenure: July 1, 2012

Date of promotion to full professor: July 1, 2018

EDUCATION

UNIVERSITY OF CALGARY
Calgary, Alberta

Ph.D. Elec. Comp. Engineering
Jan. 2002 - Jul. 2006

Thesis title: Reconfigurable Antennas Based on Electronically Tunable Reflectarrays (*advisor*: Dr. Michal Okoniewski)

UNIVERSITY OF CALGARY
Calgary, Alberta

M.Sc. Elec. Comp. Engineering
May 1999 - Dec. 2001

Thesis title: Electro-optic modulators for radio-on-fiber applications (*advisor*: Dr. Michal Okoniewski)

UNIVERSITY OF CALGARY
Calgary, Alberta

B.Sc. Elec. Comp. Engineering
(*with distinction, internship*)
Sept. 1994 - Apr. 1999

RELATED

Universidad Politécnica de Madrid
Madrid, Spain

Visiting Professor

May 2014 - Jul. 2014

- Collaborating on multibeam reflectarrays for satellite applications (with ESA)

European Space Agency - ESTEC
Noordwijk, The Netherlands

Visiting Scientist

Jan. 2014 - May 2014

- Collaborating with researchers in antenna and millimetre-wave section on reconfigurable telecom antennas for satellite applications

TRLabs
Calgary, Alberta

Research associate

Apr. 1999 - Jul. 2006

- Conducted research on reconfigurable antennas and RF systems
- Designed microwave structures for improving the performance of electro-optic modulators in radio-on-fibre systems
- Supervised TRLabs internship and research students

TRLabs
Calgary, Alberta

Research intern
May 1997 - Aug. 1998

- Researched experimental optical modulation techniques for combating optical fibre dispersion in radio-on-fibre applications
- Performed radio channel measurements to determine the impact of the channel on the performance on digital modulation techniques
- Constructed an electronic driver for a semiconductor injection laser for fibre optics applications

**HONOURS AND
AWARDS**

Jan. 2020	Eugene V. Polistuk Chair in Electromagnetic Design
Jul. 2017	IEEE AP-S R. W. P. King paper award (<i>shared with Tony Liang</i>)
May 2017	Departmental Teaching Award
Jul. 2015	IEEE AP-S R. W. P. King paper award (<i>shared with Tony Liang</i>)
Apr. 2012	Ontario MEDI Early Researcher Award
Sep. 2011	Elevated to IEEE Senior Member
May 2011	Gordon R. Slemon Award for the Teaching of Design
April 2011	Early Career Teaching Award
August 2010	Appointed Associate Editor, IEEE Transactions on Antennas & Propagation
July 2010	Exceptional Reviewer award for IEEE Trans. Antennas & Propagation
Spring 2010	Departmental Teaching Award
Fall 2009	Departmental Teaching Award
Fall 2007	Departmental Teaching Award
Nov. 2006	Alberta Science and Technology Foundation (ASTech) Leaders of Tomorrow Award
Jul. 2004	Student Paper Award, 2004 IEEE AP-S International Symposium (Ph.D.)
Sep. 2003	Canadian Wireless Telecommunications Association Scholarship (Ph.D.)
Jun. 2002	Governor General of Canada Gold Medal (M.Sc.)
Jan. 2002	Best Student Paper Award, 2002 International Conference on Microwaves, Radar, and Wireless Communications (MIKON) (M.Sc.)
Sep. 2001	Alberta Ingenuity Fund Studentship (Ph.D., 5 years)
Sep. 2001	NSERC PGS B Postgraduate Scholarship (Ph.D., 2 years)
Sep. 1999	iCORE Post Graduate Scholarship Award (M.Sc., Ph.D., 6 years)
Sep. 1999	TRLabs Scholarship, Fellowship and Special Award (M.Sc., Ph.D., 6 years)
Sep. 1999	NSERC PGS A Postgraduate Scholarship (M.Sc., 2 years)
May 1999	Engineering Institute of Canada Gold Medal (B.Sc.)

COURSES TAUGHT	TERM	CLASS	ENROLMENT	
(University of Toronto)		<i>(Undergraduate)</i>		
	Spring 2021	ECE221H1S, Electric and Magnetic Fields	322 ¹	
	Spring 2021	ECE1236H1S, Microwave and Millimetre-Wave Techniques	6	
	Spring 2020	ECE221H1S, Electric and Magnetic Fields	103	
	Spring 2020	ECE1229H1S, Advanced Antenna Theory	5	
	Spring 2019	ECE221H1S, Electric and Magnetic Fields	115	
	Fall 2018	ECE1229H1S, Advanced Antenna Theory	12	
	Fall 2017	ECE320H1S, Fields and Waves	62	
	Spring 2017	ECE221H1S, Electric and Magnetic Fields	116	
	Spring 2017	ECE422H1S, Radio and Microwave Wireless Systems	21	
	Spring 2016	ECE357H1S, Electromagnetic Fields	34	
	Spring 2016	ECE422H1S, Radio and Microwave Wireless Systems	26	
	Spring 2015	ECE357H1S, Electromagnetic Fields	38	
	Spring 2015	ECE422H1S, Radio and Microwave Wireless Systems	9	
	Fall 2013	MAT290H1F, Advanced Engineering Mathematics	98	
	Spring 2013	ECE422H1S, Radio and Microwave Wireless Systems	15	
	Fall 2012	ECE320H1S, Fields and Waves	83	
	Spring 2012	ECE422H1S, Radio and Microwave Wireless Systems	8	
	Fall 2011	ECE320H1S, Fields and Waves	68	
	Spring 2011	ECE422H1S, Radio and Microwave Wireless Systems	25	
	Fall 2010	ECE320H1S, Fields and Waves	62	
	Spring 2010	ECE422H1S, Radio and Microwave Wireless Systems	35	
	Fall 2009	ECE320H1S, Fields and Waves	93	
	Spring 2009	ECE422H1S, Radio and Microwave Wireless Systems	36	
	Fall 2008	ECE320H1F, Fields and Waves	55	
	Spring 2008	ECE422H1S, Radio and Microwave Wireless Systems	41	
	Fall 2007	ECE320H1F, Fields and Waves	53	
	Spring 2007	ECE422H1S, Radio and Microwave Wireless Systems	71	
			<i>(Graduate)</i>	
		Fall 2013	ECE1229H1S, Advanced Antenna Theory	7
		Fall 2012	ECE1229H1S, Advanced Antenna Theory	11
		Fall 2011	ECE1229H1S, Advanced Antenna Theory	5
		Fall 2010	ECE1089H1F, Microwave structures integrated with nonlinear devices (reading course)	1
		Fall 2010	ECE1229H1S, Advanced Antenna Theory	6
		Spring 2010	ECE1229H1S, Advanced Antenna Theory	7
		Spring 2009	ECE1253H1S, Active Microwave Circuits	5
	Spring 2008	ECE1253H1S, Active Microwave Circuits	9	

¹All lecture sections merged for online delivery due to COVID-19

- NUMBER OF UNDERGRADUATE SUPERVISORSHIPS**
- Undergraduate summer project students: 15 completed
 - Undergraduate 4th year project students: 76 graduated
 - Engineering Science / ECE499 thesis students: 6 graduated

GRADUATE

- Graduate Theses / Projects

In progress

M.Eng. 0

M.A.Sc. 3

Ph.D. 7

Completed

M.Eng. 3

M.A.Sc. 12

Ph.D. 4

Ph.D. international exchange students 5

POST-DOCTORAL

In progress 0

Completed 5

GRADUATE THESES (COMPLETED)

1. Jonathan Anderson (09/2016–09/2020)
Thesis topic: Electromagnetic Surface Treatments for Improving Ground Penetrating Radar
2. Gursimran Sethi Singh (09/2016–01/2020)
Thesis title: Low-Profile Radial Leaky-Wave Apertures for Satellite Applications
3. Min Yin (Talia) Xu (09/2016–01/2020)
Thesis title: Reconfigurable Dual-band and Wide-band Spatially-fed Array Antennas
4. Utkarsh Patel (co-supervised 50% with Prof. Triverio, 09/2014–07/2019), *Ph.D.*
Thesis title: Reduced-Order Integral Equation Methods to Solve Complex Electromagnetic Problems
5. Ciaran Geaney (09/2015–07/2019), *M.A.Sc.*
Thesis title: Reflectarray Antennas for Multiple-Beam Satellite Applications
6. Bozhou Du (09/2014–11/2016), *M.A.Sc.*
Thesis: Analysis and Design of Simple, Low Loss and Low Cost Reconfigurable Reflectarrays
7. Jeff Nicholls (09/2013–12/2015), *M.A.Sc.*
Thesis: Integrated Feeds for Electronically Reconfigurable Apertures
8. Tony Liang (01/2011-12/2015), *Ph.D.*
Thesis title: Design of Ultra-Wideband Reflectors

9. Catherine Kocia (09/2012-12/2014), *M.A.Sc.*
Thesis: Optically Transparent Reflectarrays for Satellite Applications
10. Krishna Kumar Kishor (05/2010-11/2014), *Ph.D.*
Thesis: Multi-Functional Chassis-Based Antennas Using Characteristic Mode Theory
11. Alvin Ho (co-supervised 50% with Prof. Eleftheriades, 09/2010–04/2013) , *M.A.Sc.*
Thesis: High-Permittivity Hemispherical Lens for MIMO Applications with Closely-Spaced Antennas
12. Natalie Jones (09/2011-11/2013), *M.A.Sc.*
Thesis: An Ultra-wideband Spatial Filter for Time-of-Arrival Localization in Tunnels
13. Yu (Derek) Zhou (09/2009-12/2011), *M.A.Sc.*
Thesis: Performance Evaluation of Pattern Reconfigurable Antennas in MIMO Systems
14. Jonathan Yun Lau (09/2007-11/2011), *Ph.D.*
Thesis: Reconfigurable Transmitarray Antennas
15. Liang (Tony) Liang (09/2008-12/2010), *M.A.Sc.*
Thesis: Evaluation of UWB Beamformers in a wireless channel and potential microwave implementations
16. Krishna Kumar Kishor (09/2007-04/2010), *M.A.Sc.*
Thesis: An Active Reconfigurable Reflectarray Antenna

**M.ENG. PROJECTS
(COMPLETED)**

1. Junchen Liu (09/2018 – 04/2019)
Project: Convex Optimization of Wireless Power Transfer Systems
2. Dinesh Poopalaratnam (01/2013 – 12/2013)
Project: Multiband handset antennas based on characteristic modes
3. Chang Liu (09/2009 – 09/2010)
Project: Broadband reconfigurable reflectarray elements

**PDF PROJECTS
(COMPLETED)**

1. Reza Gholami (co-supervised 50% with Prof. Triverio) (01/2020 – 07/2021)
Project: Reduced-order electromagnetic modelling
2. Elham Baladi (02/2019 – 02/2021)
Project: Modelling of electromagnetic metasurfaces
3. Mehdi Hosseini (02/2016–07/2018)
Project: Design and analysis of polarizers for satcom
4. Kevin Zhu (09/2011 – 08/2012)
Project: Microwave precursors
5. Asanee Suntives (05/2010 – 05/2011)
Project: Electronically tunable leaky-wave antennas

**INTERNATIONAL
EXCHANGE
STUDENTS**

1. Ha Bui Van (Ph.D. student, Politecnico di Milano, Italy, 01/2013–09/2013)
Thesis topic: Mutual coupling compensation in reflectarrays
2. Changjiang Deng (Ph.D. student, Tsinghua University, China, 03/2015–07/2015)
Thesis topic: Compact multifunction handset antennas
3. Pablo Alcón García (Ph.D. student, Universidad de Oviedo, Spain, 09/2015 – 11/2015)
Thesis topic: Compact phase shifters for transmitarrays
4. Eduardo Martínez de Rioja (Ph.D. student, Universidad Politécnica de Madrid, Spain, 08/2016 – 11/2016)
Thesis topic: Multi-beam reflectarrays and transmitarrays
5. Jun Luo (Ph.D. student, Ph.D. student, Tsinghua University, China, 10/2016 – 03/2017)
Thesis topic: Wideband and reconfigurable transmitarrays

**GRADUATE
THESES (IN
PROGRESS)**

• PH.D. CANDIDATES

1. Ziqi Liu (09/2021–present)
2. Mahdi Bahdani (09/2021–present)
3. Gengyu (Paul) Xu (co-supervised 50% with Prof. Eleftheriades, 05/2016–present)
Thesis topic: Advanced Electromagnetic Surfaces with Engineered Dispersion
4. Parinaz Naseri (01/2018–present)
Thesis topic: Machine Learning-Based Approaches for Inverse Design of Multilayer Electromagnetic Metasurfaces
5. Zhengzheng Wang (09/2018–present)
Thesis topic: Accelerated Analysis and Optimization Methods for the Design of Electromagnetic Surface Unit Cells
6. Stewart Pearson (09/2018–present)
Thesis topic: Optimization methods for advanced electromagnetic surfaces
7. Beichen Duan (co-supervised 50% with Prof. Bobicki (MSE) (09/2018–present)
Thesis topic: Design of Microwave Imaging Systems for Sensor-Based Ore Sorting

• M.A.SC. CANDIDATES

1. Jeff Majnaric (09/2021–present)
2. Nicolas Faria (09/2018–present)
Thesis topic: Reconfigurable cylindrical beamformers based on electromagnetic surfaces
3. Christopher Dyck (09/2020–present)
Thesis topic: TBD

**GRADUATE
STUDENT
HONOURS AND
AWARDS**

- Honourable mention, IEEE AP-S Student Paper Competition, *Gengyu Xu* (Jul. 2019)
- NSERC Canada Graduate Scholarship, *Stewart Pearson* (Sep. 2019)
- Ontario Trillium Scholarship, *Parinaz Naseri* (Sep. 2018)
- Ontario Graduate Scholarship (OGS), *Stewart Pearson* (Sep. 2018)
- Queen Elizabeth II Graduate Scholarship in Science and Technology, *Gengyu Xu* (Sep. 2018)
- Best oral paper award, 2017 IEEE International Conference on Electrical Performance of Electronic Packaging and Systems (EPEPS), *Utkarsh Patel* (Oct. 2017)
- Ontario Graduate Scholarship (OGS), *Gengyu Xu* (Sep. 2017)
- Best Paper Award at the 21st IEEE Workshop on Signal and Power Integrity (SPI), *Utkarsh Patel* (Jul. 2017)
- Honourable mention, IEEE AP-S Student Paper Competition, *Utkarsh Patel* (Jul. 2017)
- Honourable mention, IEEE AP-S Student Paper Competition, *Gengyu Xu* (Jul. 2017)
- NSERC Canada Graduate Scholarship, *Utkarsh Patel* (Sep. 2016, Sep. 2017)
- IEEE AP-S R. W. P. King paper award, *shared with Tony Liang* (Jul. 2015)
- Wallberg Fellowship, *Tony Liang* (Sep. 2015)
- Queen Elizabeth II Graduate Scholarship in Science and Technology, *Tony Liang* (Sep. 2014)
- Ontario Graduate Scholarship (OGS), *Utkarsh Patel* (Sep. 2014, 2015)
- Ontario Graduate Scholarship (OGS), *Jeff Nicholls* (Sep. 2014)
- Nomination for IEEE AP-S R. W. P. King paper award, *Jonathan Lau* (Apr. 2013)
- NSERC Canada Graduate Scholarship, *Jeff Nicholls* (Apr. 2013)
- NSERC Canada Graduate Scholarship, *Trevor Cameron* (Jan. 2012)
- Ontario Graduate Scholarship (OGS), *Natalie Jones* (Sep. 2011)
- NSERC Postdoctoral Fellowship (PDF), *Asanee Suntives* (Jul. 2010)
- Ontario Graduate Scholarship in Science and Technology (OGSST), *Jonathan Lau* (Sep. 2008, Sep. 2009)
- NSERC Canada Graduate Scholarship, *Jonathan Lau* (May 2007)

**UNDERGRADUATE
THESIS PROJECTS
(COMPLETED)**

1. Yi-Hsuan Yeh (09/2020-04/2021)
Thesis: Characteristic mode-based design of a full-duplex radio terminal
2. Jing Shuang (Lisa) Li (09/2017-04/2018)
Thesis: Intelligent synthesis of metasurfaces
3. Jianwei Sun (09/2016-04/2017)
Thesis: Synthesis of multibeam reflectarrays using genetic algorithms
4. Catherine Kocia (09/2011-04/2012)
Thesis: Compound reconfigurable apertures
5. Linghan Li (co-supervised 50% with Prof. Khisti, 09/2010-04/2011)
Thesis: Private communications using reconfigurable antennas
6. Hui Yuan Xiong (09/2008-04/2009)
Thesis: Design and modeling of differentially-fed frequency agile antennas

**UNDERGRADUATE
SUMMER
PROJECTS
(COMPLETED)**

1. Dana Kokoska (05/2020–08/2020)
Project: Realization of reconfigurable leaky-wave antennas
2. Iliya Shofman (05/2020–08/2020)
Project: Deployable metasurfaces for cubesats
3. Gengyu (Paul) Xu (05/2016-08/2016)
Project: Rapid analysis of multilayer periodic structures
4. Jing Shuang (Lisa) Li (05/2016-08/2016)
Project: OpenMP implementation of periodic method of moments
5. Mohammad Mohsen-Pour (05/2016-08/2016)
Project: Characterizing non-linear behaviour of reconfigurable reflectarray elements
6. Jeff Nicholls (05/2013-08/2013)
Project: Simulation of ion optics for electrostatic ion thrusters
7. Utkarsh Patel (05/2011-08/2011)
Project: RFID antenna development
8. Kenneth Ng, Gabriel Ng (team, 05/2010-08/2010)
Project: ECE320 lab development
9. Linghan Li (co-supervised 50% with Prof. Khisti, 05/2010-08/2010)
Project: Investigation of privacy schemes using reconfigurable antennas
10. Jeaff Wang (05/2010-08/2010)
Project: High speed antenna field modulation controller
11. Justin Martinko (05/2009-08/2009)
Project: Experimental measurements of frequency agile antennas
12. Hui Yuan Xiong (05/2008-08/2008)
Project: Ultra-wideband array test bed
13. Xindai (Lewis) Li (05/2008-08/2008)
Project: Reconfigurable antenna controller / feeds

14. Hui Yuan Xiong (05/2007-08/2007)
Project: Frequency agile antenna architectures

**UNDERGRADUATE
STUDENT
HONOURS AND
AWARDS**

- NSERC undergraduate research award (USRA), *Dana Kokoska* (May 2020)
- Engineering Science Summer Research Opportunity Program (ESROP) fellowship, *Iliya Shofman* (May 2020)
- NSERC undergraduate research award (USRA), *Gengyu (Paul) Xu* (May 2016)
- NSERC undergraduate research award (USRA), *Jing Shuang (Lisa) Li* (May 2016)
- NSERC undergraduate research award (USRA), *Mohammad Mohsen-Pour* (May 2016)
- NSERC undergraduate research award (USRA), *Jeff Nicholls* (May 2013)
- CNIB award, *Sarah Hossain, Mohamed Elsayed, Mohannad Fahim Ali* (Sep. 2011)
- NSERC undergraduate research award (USRA), *Utkarsh Patel* (May 2011)
- ALOHA Design Award, *Alp Kucukelbir, Tyler de Witt, Rajat (Mark) Grover* (May 2009)
- IEEE Antennas and Propagation Society Research Award, *Hui Yuan Xiong* (May 2008)
- NSERC undergraduate research award (USRA, declined), *Justin Martinko* (May 2009)
- NSERC undergraduate research award (USRA), *Hui Yuan Xiong* (May 2008)
- NSERC undergraduate research award (USRA), *Xindai (Lewis) Li* (May 2008)
- Best poster, Engineering Science Undergraduate Research Day (UnERD), *Hui Yuan Xiong* (August 2007)
- Engineering Science Summer Research Opportunity Program (ESROP) fellowship, *Hui Yuan Xiong* (May 2007)

**UNIVERSITY
ADMINISTRATIVE
ACTIVITIES**

- Associate Chair, Graduate Studies, ECE (July 2018 to June 2021)
- Member, SGS Advisory Committee on Program and Student Matters (July 2019 to June 2021)
- Member, ECE Executive Committee (July 2018 to June 2021)
- Member, ECE Advisory Committee (July 2018 to June 2021)
- Chair, ECE Graduate Matters Committee (GMC) (July 2018 to June 2021)
- Member, FASE Engineering Graduate Education Committee (EGEC) (July 2018 to June 2021)
- Member, Ad Hoc Committee to Explore Adding ECE concentrations to the MScAC degree in Computer Science (September 2018 to present)
- Member, SGS Awards Committee (July 2018 to June 2021)

- Member, Faculty of Applied Science and Engineering Working Group to Establish an Engineering Education-Based Institute (October 2016 to February 2018)
- Member, ECE Curriculum Matters Committee, ECE Department, University of Toronto (July 2016 to June 2017)
- Member, ECE PTR Committee, ECE Department, University of Toronto (July 2014 to July 2016)
- Member, Faculty of Applied Science and Engineering Scholarship and Awards Committee, University of Toronto (July 2012 to December 2013)
- Graduate coordinator, Electromagnetics Group, ECE Department, University of Toronto (July 2012 to June 2013)
- Co-chair, Joint Health and Safety Subcommittee, ECE Department, University of Toronto (July 2008 to June 2013)
- Member, Joint Health and Safety Subcommittee, APSC Faculty, University of Toronto (July 2008 to June 2013)
- EM search committee, ECE Department, University of Toronto (November 2010 to July 2011)
- Graduate Secretary, Electromagnetics Group, ECE Department, University of Toronto (July 2009 to June 2010)
- Member, UofT Canadian Space Agency Roundtable Panel, University of Toronto (November 2008 to December 2009)
- Member, Computer Systems Committee, ECE Department, University of Toronto (January 2008 to July 2008)
- Member, Student-Staff Committee, ECE Department, University of Toronto (September 2007 to July 2009)

PUBLICATIONS BOOK CHAPTERS

[B1] S. V. Hum, *Aperture Antennas for Millimeter and Sub-Millimeter Wave Applications*. Cham: Springer International Publishing AG, 2018, ch. 5, pp. 143–189.

JOURNAL PAPERS PUBLISHED OR ACCEPTED

- [JP58] **E. Baladi**¹ and S. V. Hum, “Equivalent circuit models for metasurfaces using Floquet modal expansion of surface current distributions (in press),” *IEEE Transactions on Antennas and Propagation*, 2021.
- [JP57] **E. Baladi**, **M. Y. Xu**, **N. Faria**, J. Nicholls, and S. V. Hum, “Dual-band circularly polarized fully reconfigurable reflectarray antenna for satellite applications in the Ku band (in press),” *IEEE Transactions on Antennas and Propagation*, 2021.

¹Boldface indicates supervised HQP

- [JP56] **Z. Wang** and S. V. Hum, “A broadband model-based parameter estimation method for analyzing multi-layer periodic structures (in press),” *IEEE Transactions on Antennas and Propagation*, 2021.
- [JP55] **P. Naseri** and S. V. Hum, “A generative machine learning-based approach for inverse design of multilayer metasurfaces (in press),” *IEEE Transactions on Antennas and Propagation*, 2021.
- [JP54] **G. Xu**, G. V. Eleftheriades, and S. V. Hum, “Analysis and design of general printed circuit board metagratings with an equivalent circuit model approach,” *IEEE Transactions on Antennas and Propagation*, vol. 69, no. 8, pp. 4657–4669, 2021.
- [JP53] **G. Xu**, G. V. Eleftheriades, and S. V. Hum, “Approach to the analysis and synthesis of cylindrical metasurfaces with noncircular cross sections based on conformal transformations,” *Phys. Rev. B*, vol. 102, p. 245305, Dec 2020.
- [JP52] **G. Xu**, G. V. Eleftheriades, and S. V. Hum, “Discrete-Fourier-transform-based framework for analysis and synthesis of cylindrical Omega-bianisotropic metasurfaces,” *Phys. Rev. Applied*, vol. 14, p. 064055, Dec 2020.
- [JP51] **G. Xu**, S. V. Hum, and G. V. Eleftheriades, “Dual-band reflective metagratings with interleaved meta-wires (in press),” *IEEE Transactions on Antennas and Propagation*, 2020.
- [JP50] **U. R. Patel**, P. Triverio, and S. V. Hum, “A fast macromodeling approach to efficiently simulate inhomogeneous electromagnetic surfaces,” *IEEE Transactions on Antennas and Propagation*, vol. 68, no. 11, pp. 7480–7493, 2020.
- [JP49] **P. Naseri**, M. Riel, Y. Demers, and S. V. Hum, “A dual-band dual-circularly polarized reflectarray for K/Ka-band space applications,” *IEEE Transactions on Antennas and Propagation*, vol. 68, no. 6, pp. 4627–4637, 2020.
- [JP48] **P. Naseri**, J. R. Costa, S. A. Matos, C. A. Fernandes, and S. V. Hum, “Equivalent circuit modeling to design a dual-band dual linear-to-circular polarizer surface,” *IEEE Transactions on Antennas and Propagation*, vol. 68, no. 7, pp. 5730–5735, July 2020.
- [JP47] S. V. Hum and L. Sevgi, “From engineering electromagnetics to electromagnetic engineering: Teaching/training next generations [guest editorial],” *IEEE Antennas and Propagation Magazine*, vol. 62, no. 2, pp. 12–13, April 2020.
- [JP46] **G. Xu**, S. V. Hum, and G. V. Eleftheriades, “Augmented Huygens’ metasurfaces employing baffles for precise control of wave transformations,” *IEEE Transactions on Antennas and Propagation*, vol. 67, no. 11, pp. 6935–6946, Nov 2019.
- [JP45] **C. S. Geaney**, **M. Hosseini**, and S. V. Hum, “Reflectarray antennas for independent dual linear and circular polarization control,” *IEEE Transactions on Antennas and Propagation*, vol. 67, no. 9, pp. 5908–5918, Sep. 2019.
- [JP44] C. Deng, Z. Xu, A. Ren, and S. V. Hum, “TCM-based bezel antenna design with small ground clearance for mobile terminals,” *IEEE Transactions on Antennas and Propagation*, vol. 67, no. 2, pp. 745–754, Feb. 2019.

- [JP43] **M. Hosseini** and S. V. Hum, “A semianalytical approach to designing high-transparency low-profile circular polarizers,” *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 12, pp. 7138–7147, 2018.
- [JP42] **G. Xu**, G. V. Eleftheriades, and S. V. Hum, “Generalized synthesis technique for high-order low-profile dual-band frequency selective surfaces,” *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 11, pp. 6033–6042, Nov 2018.
- [JP41] **U. R. Patel**, P. Triverio, and S. V. Hum, “A macromodeling approach to efficiently compute scattering from large arrays of complex scatterers,” *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 11, pp. 6158–6169, 2018.
- [JP40] E. M. de Rioja, J. A. Encinar, A. G. Pino, B. Gonzalez-Valdes, S. V. Hum, and C. T. Herrero, “Bifocal design procedure for dual-reflectarray antennas in offset configurations,” *IEEE Antennas and Wireless Propagation Letters*, vol. 17, no. 8, pp. 1421–1425, Aug 2018.
- [JP39] **G. Xu**, S. V. Hum, and G. V. Eleftheriades, “A technique for designing multilayer multistopband frequency selective surfaces,” *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 2, pp. 780–789, Feb. 2018.
- [JP38] **M. Hosseini** and S. V. Hum, “A circuit-driven design methodology for a circular polarizer based on modified Jerusalem cross grids,” *IEEE Trans. Antennas Propag.*, vol. 65, no. 10, pp. 5322–5331, October 2017.
- [JP37] **U. P. Patel**, P. Triverio, and S. V. Hum, “A novel single-source surface integral method to compute scattering from dielectric objects,” *IEEE Antennas and Wireless Propagation Letters*, vol. 16, pp. 1715–1718, 2017.
- [JP36] S. V. Hum and **B. Du**, “Equivalent circuit modelling for reflectarrays using Floquet modal expansion,” *IEEE Transactions on Antennas and Propagation*, vol. 65, no. 3, pp. 1131–1140, March 2017.
- [JP35] **K. K. Kishor** and S. V. Hum, “Multi-port multi-band chassis-mode antenna design using characteristic modes,” *IEEE Antennas and Propagation Letters*, vol. 16, pp. 609–612, 2017.
- [JP34] **L. Liang** and S. V. Hum, “Design of an UWB reflectarray as an impedance surface using Bessel filters,” *IEEE Transactions on Antennas and Propagation*, vol. 64, no. 10, pp. 4242–4255, October 2016. (**Awarded 2017 IEEE AP-S R. W. P. King paper award**)
- [JP33] **J. Nicholls** and S. V. Hum, “Full-space electronic beam-steering transmitarray with integrated leaky-wave feed,” *IEEE Transactions on Antennas and Propagation*, vol. 64, no. 8, pp. 3410–3422, August 2016.
- [JP32] B. K. Lau, D. Manteuffel, H. Arai, and S. V. Hum, “Theory and applications of characteristic modes [guest editorial],” *IEEE Transactions on Antennas and Propagation*, vol. 64, no. 7, pp. 2590–2594, July 2016.
- [JP31] **C. Deng**, Z. Feng, and S. V. Hum, “MIMO mobile handset antenna merging characteristic modes for increased bandwidth,” *IEEE Transactions on Antennas and Propagation*, vol. 64, no. 7 (part I), pp. 2660–2667, July 2016.

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THESES

- [T2] S. V. Hum, "Reconfigurable antennas based on electronically tunable reflectarrays," Ph.D. dissertation, University of Calgary, June 2006.
- [T1] S. V. Hum, "Electro-optic modulators for radio-on-fiber applications," Master's thesis, University of Calgary, December 2001.

CAREER TOTALS

Refereed journal papers (published/accepted)	57
Refereed conference papers (published/accepted)	76
Total	133
h-index	25
Citations	2,761 (source: Google Scholar)

**INVITED TALKS
AND WORKSHOPS**

- [IT23] S. V. Hum, M. Arrebola, A. Massa, P. Roaca, H. Legay, R. Gillard, D. Cavallo, and C. Craeye, “Arrays and Reflectarrays,” European School of Antennas, Louvain-la-Neuve, Belgium, September 2018.
- [IT22] S. V. Hum, “Advanced Electromagnetic Surfaces: Architectures and Opportunities”, University of Rennes1 / IETR, April 2018
- [IT21] S. V. Hum, J. A. Encinar, A. Massa, P. Rocca, R. Gillard, A. Neto, H. Legay, and C. Craeye, “Arrays and Reflectarrays,” European School of Antennas, Louvain-la-Neuve, Belgium, 8 September 2016.
- [IT22] S. V. Hum, “Advances in Reconfigurable Antennas and Spatially-Fed Arrays: Contributions by Julien Perruisseau-Carrier”, Scientific Workshop, 2015 European Conference on Antennas and Propagation, Lisbon, Portugal, 14 April 2015.
- [IT21] S. V. Hum, “Reconfigurable Apertures and Antennas: Architectures and Opportunities,” European Space Agency, Noordwijk, The Netherlands, 30 September 2014
- [IT20] S. V. Hum, G. Franceschetti, J. A. Encinar, A. Massa, G. Oliveri, R. Gillard, A. Neto, and C. Craeye, “Arrays and Reflectarrays,” European School of Antennas, Louvain-la-Neuve, Belgium, 2 October 2014.
- [IT19] S. V. Hum, “Reconfigurable Apertures and Antennas: Architectures and Opportunities,” Universidad Politécnica de Madrid, 29 May 2014.
- [IT18] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” École Polytechnique Fédérale de Lausanna (EPFL), 23 April 2014.
- [IT17] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” Lund University, 24 March 2014.
- [IT16] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” Université Catholique de Louvain, 24 February 2014.
- [IT15] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” Lund University, 24 March 2014.
- [IT14] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” École Polytechnique Fédérale de Laussane, 23 April 2014.
- [IT13] J. A. Encinar, S. V. Hum, and J. Perruisseau-Carrier, “Reflectarray Antennas: Design, Reconfigurability And Potential Applications,” short course for the 2012 IEEE Antennas and Propagation Society International Symposium, 8 July 2012.
- [IT12] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” University of Akron, 6 July 2012.

- [IT11] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” University of Alberta / IEEE Northern Canada MTT / AP Chapter, 30 April 2012.
- [IT10] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” Ryerson University, 23 June 2011.
- [IT9] J. A. Encinar, S. V. Hum, J. Perruisseau-Carrier, and K. van Caekenberghe, “Electronically Scanned Reflectarrays,” short course for the 2011 European Conference on Antennas and Propagation, 15 April 2011.
- [IT8] S. V. Hum, “Reconfigurable Antennas: Architectures, Technologies, and Their Exciting Future,” Dalhousie University, 16 February 2011.
- [IT7] S. V. Hum, “Reconfigurable Antennas and Antenna Arrays: Architectures and Technologies,” University of Illinois at Urbana-Champaign, 5 October 2010.
- [IT6] S. V. Hum, “Reconfigurable Antennas and Antenna Arrays: Architectures and Technologies,” Universidad Politécnica de Madrid, 19 April 2010.
- [IT5] S. V. Hum, “Reconfigurable Antennas and Antenna Arrays: Architectures and Technologies,” McMaster University, 9 April 2010.
- [IT4] S. V. Hum, “Reconfigurable Antennas: Architectures and Technologies,” MDA, 18 February 2010.
- [IT3] S. V. Hum, “Reconfigurable Antennas: Architectures and Technologies,” IEEE Communications, Microwave Theory & Techniques, and Antennas & Propagation Chapter (COMMTAP), University of Calgary, 20 February 2009.
- [IT2] S. V. Hum, “Reconfigurable Antennas: Making it Possible,” COM DEV, 22 August 2007.
- [IT1] S. V. Hum, “Reconfigurable Antennas: Present and Future Research,” McGill University, 11 July 2007.

PROFESSIONAL SOCIETY MEMBERSHIPS

Institute of Electrical and Electronic Engineers (IEEE)
 IEEE Antennas and Propagation Society (AP-S)
 IEEE Microwave Theory and Techniques Society (MTT-S)
 International Union of Radio Science / Union Radio-Scientifique Internationale (URSI)
 Professional Engineers Ontario (P. Eng.)
 Amateur radio license, advanced class (callsign VA3SHV)

PROFESSIONAL ACTIVITIES

Guest editor, IEEE Antennas and Propagation Magazine Special Issue on Engineering Education (2018–2019)

Co-chair, IEEE Antennas and Propagation Society Education Committee (2018 – present)

Conference organizing committee (short courses and workshops chair), 2018 European Conference on Antennas and Propagation (EuCAP2018)

Reviewer, NSERC Collaborative Research and Development Grants, 2016.

North American Liason, European Conference on Antennas and Propagation (2016–2018).

Guest editor, IEEE Transactions on Antennas and Propagation Special Issue on the Theory and Applications of Characteristic Modes (August 2014 – July 2016)

Associate editor, IEEE Transactions on Antennas and Propagation (2010–2016)

Chair, IEEE Antennas and Propagation Society Design Competition (2016–2018)

Co-chair, 2015 IEEE International Symposium on Antennas and Propagation Technical Program Committee

Member, NSERC Strategic Project Grants review panel (2014 – present)

Member, 2015 European Conference on Antennas and Propagation Technical Program Committee

Member, European Conference on Antennas and Propagation Technical Program Committee: 2014, 2015, 2017

Member, 2014 IEEE International Symposium on Antennas and Propagation Technical Program Committee

Member, IEEE Antennas and Propagation Society Education Committee (2013 – present)

Chair, 2013 NSERC Collaborative Research and Development (CRD) Grant Site Committee

Member, 2012 IEEE International Symposium on Antennas and Propagation Technical Program Committee

Member, 2011 IEEE International Symposium on Antennas and Propagation Technical Program Committee

Member, 2010 IEEE International Symposium on Antennas and Propagation Steering Committee (Registration co-chair, website chair)

Member, 2010 IEEE International Symposium on Antennas and Propagation Technical Program Committee

Vice-chair, IEEE Toronto Section, Electromagnetics and Radiation Chapter (Spring 2009 – present)

Member, 2009 International Conference on Ultrawideband (ICUWB) Technical Program Committee

Co-chair, 2009 International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM) Organized Session on “Arrays and Reflectarrays”

Co-chair, 2007 Electromagnetic Theory Symposium (EMTS) Special Session on “Advanced in Reflectarrays and Frequency Selective Surfaces”

Session chair for: IEEE Symposium and Antennas and Propagation (2010–2012), 2010 European Conference on Antennas and Propagation

Article reviewer for: IEEE Transactions on Antennas and Propagation, IEEE Microwave and Wireless Components Letters, IEEE Antennas and Propagation Magazine, IET Microwaves, Antennas & Propagation, IEEE Transactions on Education, Canadian Journal of Electrical and Computer Engineering, International Journal of RF and Microwave Computer-Aided Engineering, .

Research grant reviewer for: NSERC (Discovery Grants, I2I Program, Collaborative Research and Development Grants), Strategic Project Grants, New Frontiers in Research Fund (NFRF), Icelandic Research Fund, Netherlands Organization for Scientific Research (NWO), Alberta Innovates

Book reviewer for: Artech-House, John Wiley & Sons.

**OTHER
ACTIVITIES**

M.A.Sc. thesis committees as examiner	39
M.A.Sc. thesis committees as chair	25
Ph.D. qualification exam committees	58
Ph.D. advisory committees	22
Ph.D. thesis committees as chair	22
Ph.D. committees as examiner	29
Ph.D. committees as external appraiser	2
Ph.D. committees as external examiner	6
<hr/> Total	<hr/> 203