

# CURRICULUM VITAE

## Yuriy V. Goncharenko

### Education

1983 - 1989	School N143, Kharkov
1989 - 1993	The V.P. Zatonsky Lycée (school N5), Kharkov
1993 – 1999	National Technical University “Kharkov Polytechnic Institute” Graduated as Radio Physics Engineer with a distinction.
2001-2006	Institute of Radio-Physics and Electronics of the National Academy of Sciences of Ukraine, part-time Ph.D. student
Languages	English, Russian, Ukrainian

### Degrees

Master in Radio Physics and Electronics with Honors (1999)	<u>Thesis:</u> Digital correlator for incoherent scattering radar.
Ph.D. in Radio Physics (2007)	<u>Thesis:</u> Statistical characteristics of trans-atmospheric UHF signals obtained during strong solar proton events <u>Supervisor:</u> Prof. Felix Kivva

### Work experience

2016-present	Research Fellow at the Microwave System Laboratory, Department of Electrical and Computer Engineering, Colorado State University	<ul style="list-style-type: none"> <li>- Radiometric remote sensing of total water content (TWICE project)</li> <li>- Design of RF absorptive surfaces</li> <li>- Design of scanning mechanism for a CUBE-SAT satellite;</li> <li>- Supervision of PhD, master and undergraduate students;</li> </ul>
2014 – 2016	Research Fellow at the School of Electronics, Electrical and Computer Engineering at the University of Birmingham	<ul style="list-style-type: none"> <li>- Engineering and Signal processing for GG-TOP (Gravity Gradient - Technologies and Opportunities Project) Research Project</li> </ul>
2013 – 2014	Affiliate researcher at Applied Physics Laboratory,	<ul style="list-style-type: none"> <li>- Microwave remote sensing of breaking waves and tidal currents in</li> </ul>

	<p>University of Washington, Seattle, WA, USA</p> <p>and</p> <p>Senior Researcher, Department of Radiowave Propagation in Natural Media IRE NAS of Ukraine</p>	<p>a nearshore zone by along-track interferometric synthetic aperture radar</p>
2012 – 2013	<p>Visiting researcher (Fulbright scholar) at Applied Physics Laboratory, University of Washington, Seattle, WA, USA</p>	<ul style="list-style-type: none"> <li>- Microwave remote sensing of breaking waves in shallow water region using airborne interferometric synthetic aperture radar</li> </ul>
2001 – 2012	<ul style="list-style-type: none"> <li>- PhD student</li> <li>- Principal engineer</li> <li>- Junior researcher</li> <li>- Researcher</li> <li>- Senior researcher</li> </ul> <p>Department of Radiowave Propagation in Natural Media of the Institute of Radio-Physics and Electronics NASU (<a href="http://www.ire.kharkov.ua">www.ire.kharkov.ua</a>)</p>	<ul style="list-style-type: none"> <li>- Developed high sensitivity Ku- and C-band satellite receivers</li> <li>- Developed signal processing algorithms for microwave Doppler radar</li> <li>- Developed equipment and algorithms for microwave remote sensing of vegetation (trees, bushes, wheat) using sensors at 10 GHz, 32 GHz, 140 GHz,</li> <li>- Developed microwave moisture sensors at 10 GHz and 900 MHz</li> <li>- Investigated tropospheric response to strong solar proton events (SPE)</li> <li>- Evaluated tropospheric aerosol influence on energy balance in the atmosphere.</li> <li>- Investigated UHF electromagnetic wave propagation in the ionosphere and troposphere during SPEs</li> <li>- Developed an L1 GPS receiver for the remote sensing of wet-path delay.</li> <li>- Investigated tropospheric parameter influence on GPS signal propagation</li> <li>- Conducted numerical modeling of electromagnetic field distribution in the cartridges for adsorbent regeneration</li> </ul>
2009 – 2010	<p>Part time design engineer at Scientific and Industrial</p>	<ul style="list-style-type: none"> <li>- Developed a high-power HF tube and MOSFET generator for fast adsorbent treatment using HF electromagnetic radiation.</li> </ul>

1999 – 2000	Company SETRA LTD <a href="http://setra.com.ua/">http://setra.com.ua/</a>	<ul style="list-style-type: none"> <li>- Upgraded and provided technical support of equipment for fast oil and adsorbent treatment (BRPS-3)</li> </ul>
	Engineer-programmer at the Institute of Ionosphere NAS of Ukraine	<ul style="list-style-type: none"> <li>- Processing of data obtained by incoherent scattering radar</li> </ul>
1996 – 1999	Part-time maintenance technician at the Institute of Ionosphere NASU <a href="http://www.ion.org.ua/">http://www.ion.org.ua/</a>	<ul style="list-style-type: none"> <li>- Computer maintenance</li> <li>- Development and maintenance of scientific and educational equipment</li> </ul>

**Research Interests:**

- Microgravity remote sensing.
- Microwave and radiometric remote sensing of different types of land cover (sea surface, vegetation).
- Mechatronics.

**Skills**

- Programming (C++, Python, Borland Pascal, Basic, Assembler)
- Experience in MATLAB, IDL, Labview, Maple, PCAD, OriginLab, CST Microwave Library, Microcap, SolidWorks.
- Modeling of electromagnetic processes in MATLAB/IDL/CST environment
- Proficient with MS-Office, Adobe Photoshop, Lightroom
- HF electric circuit design and maintenance
- Participation in international conferences
- Working as leader of small and medium teams.
- Experience in conference and forum organizing

**Awards:**

2014 – NATO Science for Peace and Security Grant Award, “Remote Sensing in the Nearshore Zone for Improved Homeland Security”

2012 – Fulbright scholar, “Investigation of hydrodynamic nearshore processes using microwave remote sensing techniques”

2011 – URSI Travel Grant for attending the XXX URSI General Assembly and Scientific Symposium (URSI-2011)

2011 – IEEE Travel Grant for attending the 21st International Conference on Electricity Distribution (CIRED-2011)

2007 – Y. A. Sinelnikov Young Scientist Scholarship

2006 – Second Prize of the IX Baykal International School "Physical Processes in Space"

2002 – Recipient of the IRE NASU Young Scientist Council Award

2002 – 2005 research grant for young scientists of NAS of Ukraine

1995 – IBM Students Scholarship

**Publications**

More than 30 scientific papers have been published, including 3 patents and 17 papers presented at national and international conferences

## **Professional Activities**

2003 – present: Member of the IEEE Geoscience and Remote Sensing Society

2007 – 2009: Vice-chairman of the Young Scientist Council of IRE NASU

2008 – 2009: IEEE IRE-Kharkov Student Branch Mentor

2008: Member of the organizing committee of the 12-th International Conference on Mathematical Methods in Electromagnetic Theory (MMET'08)

2008: Co-chairman of the 8<sup>th</sup> Kharkov Young Scientist Conference “Radio-Physics, Electronics and Biophysics”

2009 – 2010: Principal Investigator of the innovation project “Device for sorbent treatment using electromagnetic field”  
<http://www.innovations.nas.gov.ua/Years/2009/912/Pages/default.aspx>

2010 – 2011: External reviewer and Supervisor of M.S. thesis on 040103-Radiophysics and Electronics (National Technical University “Kharkov Polytechnic Institute” )

## **Main Publications**

### **Journal Papers:**

1	Evaluation of size of the Atmospheric Aerosol Particles in the Reflecting Layers Occurring after Intense Solar Flares	Telecommunications and Radio Engineering, 2003, Vol.59, Issue 3&4, pp.135-140 (in English)	Y.Goncharenko F.Kivva
2	Experimental investigation of SHF signal fluctuation during solar proton events	Telecommunications and Radio Engineering, 2006, vol. 63, no 12, pp. 1053-1067 (in English)	Y. Goncharenko V. Gutnik F. Kivva
3	Certain features of UHF propagation during solar proton events	Geomagnetism and Aeronomy, 2006, vol. 46, no 2, pp. 230-233 (in English)	Y. Goncharenko F. Kivva V. Gutrik
4	Doppler spectra of microwave signals scattered from hydrodynamic formations generated by moving objects	Radio Engineering, 2010, no 3, pp. 52-61 (in Russian)	V. Gutnik V. Gorobets F. Kivva Y. Goncharenko S. Zotov

5	Influence of water and water-acid aerosols on troposphere energy balance during sun proton events (SPE) in the high-altitude areas.	Journal of Applied Electromagnetism Vol. 13, No 3, 2011, pp 1-8 (in English)	A. L. Kovorotniy, Y. V. Goncharenko V. N. Gorobets
6	Adaptive moving target indication in a windblown clutter environment.	Aerospace and Electronic Systems, IEEE Transactions on. Vol 50, Issue 4, 2014, pp.2989-2997	Y. Goncharenko G. Farquharson V. Gorobets V. Gutnik Y. Tsarin
7	Estimation of Shallow-water Breaking Wave Height from Synthetic Aperture Radar	IEEE Geoscience and Remote Sensing Letters, Vol. 12, Issue 10, 2015, pp. 2061-2065	Y. Goncharenko G. Farquharson F. Shi B. Raubenheimer S. Elgar
8	<i>Phase Calibration of an Along-track Interferometric FMCW SAR</i>	<i>Submitted to IEEE Geoscience and Remote sensing</i>	<i>H. Deng G. Farquharson Yu. Goncharenko J. Mower</i>
9	<i>Using broadband seismic networks to optimise microgravity survey strategy in the UK</i>	<i>Submitted to Near Surface Geophysics (nsg.eage.org)</i>	<i>Y. Goncharenko, D. Boddice, A. Rodgers, P. Atkins, N. Metje, D. Chapman</i>
10	<i>A novel approach to reduce environmental noise in microgravity measurements using a Scintrex CG5</i>	<i>Submitted to Journal of Applied Geophysics</i>	<i>D. Boddice, Y. Goncharenko, A. Rodgers, P. Atkins, N. Metje, D. Chapman</i>

### **Conference Papers:**

1	Evaluation of influence of sea surface backscattering on energy potential of millimeter-wave radar	International conference "Radiation and scattering of electromagnetic waves", Taganrog, 2007, pp. 353-356 (in Russian)	V. Gutnik V. Gorobets Y. Goncharenko S. Zotov
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2	Efficiency of noise reduction in the millimeter-wave Doppler radar	XXII Russian Conference on Radio-wave Propagation, Loo, 2008, pp. 112-115 (in Russian)	Y. Goncharenko V. Gorobets F. Kivva L. Vilenchik
3	Using high-power electromagnetic energy for careful sorbent regeneration	International conference on Computer as a Tool EUROCON-2011, Lisbon, Portugal, 27-29 April, 2011 (in English)	Y. Goncharenko A. Govorishev V. Gorobets S. Zotoff M. Golovko
4	Equipment for adsorbent regeneration with application of high-power UHF electromagnetic field	21st International Conference on Electricity Distribution (CIRED-2011), Frankfurt, 6-9 June 2011 Paper 0231 (in English)	Y. Goncharenko V. Gorobets S. Zotov M. Golovko F. Kivva A. Govorishev
5	Increasing of the efficiency of interference suppression in mm-band Doppler radars	XXX URSI General Assembly and Scientific Symposium (URSI-2011), Istanbul, Turkey, 13-20 August 2011, paper 08.3 (in English)	Y. Goncharenko V. Gorobets V. Gutnik
6	ATI SAR signatures of nearshore ocean breaking waves obtained from field measurements	IEEE International Geoscience and Remote Sensing Symposium (IGARSS-2013), Melbourne, Australia, 21-26 July 2013. Paper MOP.P1.2 (in English)	Yu. Goncharenko G. Farquharson
7	Phase calibration of an along-track interferometric FMCW SAR	IEEE International Geoscience and Remote Sensing Symposium (IGARSS-2013), Melbourne, Australia, 21-26 July 2013. Paper TUP.P17.103 (in English)	H. Deng G. Farquharson Yu. Goncharenko
8	Dual-beam ATI SAR measurements of surface currents in the nearshore ocean	IEEE International Geoscience and Remote Sensing Symposium (IGARSS-2014), Quebec City, Canada, 13-18 July 2014. p.2661-2664 (in English)	G. Farquharson H. Deng Yu. Goncharenko J. Mower

9	Measurements of the Nearshore Ocean with FMCW ATI SAR	10th European Conference on Synthetic Aperture Radar (EUSAR 2014), Berlin, Germany, 3-5 June 2014, p.1-4	G. Farquharson H. Deng Yu. Goncharenko J. Mower
10	ATI SAR Simulation Shows Signatures of Complex Objects	9 <sup>th</sup> international Kharkiv Symposium on Physics and Engineering of Microwaves, Millimeter and Submillimeter Waves (MSMW-2016), Kharkiv, Ukraine, 20-24 June 2016, p.1-5	A. Kovorotniy, M. Balaban, V. Gorobets, F. Kivva Yu. Goncharenko, G. Farquharson, A. Jessup
11	Tropospheric water and cloud ICE (TWICE) millimeter and submillimeter-wave radiometer instrument for 6U-Class nanosatellites	41st International Conference on Infrared, Millimeter, and Terahertz waves (IRMMW-THz). Copenhagen, Denmark, Sept 25-30, 2016	S. Reising et al.
12	Analysis of Velocity and Attitude Error in Along-Track Interferometric FMCW SAR.	2017 IEEE International Geoscience and Remote Sensing Symposium (IGARSS-2017), Fort Worth, USA, July 23-28. MO3-L3.5	H. Deng G. Farquharson M. Balaban A. Kovorotniy Yu. Goncharenko



**Patents:**

1	Device for the drying of granular dispersed substances	2010, UA-55254 F26B 3/00	V.N. Gorobets, F.V. Kivva S.M Zotov, M.I. Golovko Y.V. Goncharenko A.L. Kovorotniy, A.I. Govorishhev I.F. Domnin, S.I. Rimar
2	Device for the drying of granular dispersed substances	2011, UA-55348 F26B 3/00	V.N. Gorobets, F.V. Kivva S.M Zotov, M.I. Golovko Y.V. Goncharenko A.L. Kovorotniy, A.I. Govorishhev I.F. Domnin, S.I. Rimar
3	Equipment for the drying of high voltage transformer bushings	2011, UA-60628 F26B 5/04	V.N. Gorobets, F.V. Kivva S.M Zotov, M.I. Golovko Y.V. Goncharenko A.L. Kovorotniy, A.I. Govorishhev