

Sergiy Kharkivskiy (Sergey Kharkovsky)

Research Associate Professor of Electrical and Computer Engineering, Full Time Appointment

Degrees:

M.S.	1975	Kharkov Technical University of Radio-Electronics, Ukraine
Ph.D.	1985	Kharkov State University, Ukraine
D.Sc.	1994	Institute of Radio-Physics & Electronics, Academy of Sciences of Ukraine, Kharkov, Ukraine

Number of years on this faculty: 4.5

March 2006 – Present	Research Associate Professor, Department of Electrical and Computer Engineering, University of Missouri-Rolla
March 2003 – Feb. 2006	Visiting Associate Professor, Department of Electrical and Computer Engineering, University of Missouri-Rolla

Experience:

1999 – 2002	Professor, Department of Electrical and Electronics Engineering, Cukurova University, Adana, Turkey
1989 - 1998	Senior scientist, Institute of Radio-Physics & Electronics, Academy of Sciences of Ukraine, Kharkov, Ukraine
1978 - 1989	Research scientist, Institute of Radio-Physics & Electronics, Academy of Sciences of Ukraine, Kharkov, Ukraine
1975 – 1977	Engineer, Institute of Radio-Physics & Electronics, Academy of Sciences of Ukraine, Kharkov, Ukraine

Other Related Experience:

1996 – 1998	Professor, Department of Microwaves, Kharkov Technical University of Radio-Electronics
1994 – 1995	Associate Professor, Department of Physics, Kharkov Institute of Pilots
1986 – 1987	Assistant Professor, Department of Physics and Electronics, Kharkov Institute of Civil Engineering
1986 – 1997	Adviser of student's theses, Department of Vacuum and Solid-State Electronics, Kharkov State University

Patents:

1. U.S. patent No.: 7,190,177; March 13, 2007; filed: Aug. 18, 2004; R. Zoughi, S. Kharkivskiy and M.T. Ghasr, "Method and apparatus for nondestructive sample inspection".
2. Kharkovsky Oscillator. Author Certificate USSR N1810982, 1991, published in 1993.
3. Open Resonator. Author Certificate USSR N1807538, 1990, published in 1993.

4. Device for the Measurement of the High Temperature Superconductor Properties in Electromagnetic Fields. Author Certificate USSR N1626137, 1989, published in 1991.
5. Device for the Measurement of the Complex Dielectric Permittivity of Materials in Microwave Range. Author Certificate N1626136, 1989, published in 1991.
6. Oscillator. Author Certificate USSR N1515335, 1987, published in 1989.
7. Oscillator. Author Certificate USSR N11504783, 1987, published in 1989.
8. Device for the Determination of the Optical Axis Orientation in the Dielectric Crystals. Author Certificate USSR N1469398, 1987, published in 1989.
9. Device for Millimeter Wave Integrated Circuits: Oscillator-Antenna, Author Certificate USSR N1406706, 1986, published in 1988.
10. Oscillator. Author Certificate USSR N11350807, 1986, published in 1987.
11. Oscillator. Author Certificate USSR N11350806, 1986, published in 1987.
12. Device. Author Certificate USSR N110336, 1982.

Principle publications of last five years:

Journal publications

S. Kharkovsky and R. Zoughi, "Microwave and millimeter wave nondestructive testing and evaluation – Overview and recent advances," *IEEE Instrumentation and Measurement Magazine*, vol.10, N2, Apr. 2007.

M. Ghasr, B. J. Carroll, S. Kharkovsky, R. Zoughi and R. Austin, "Millimeter wave differential probe for nondestructive detection of corrosion precursor pitting," *IEEE Transactions on Instrumentation and Measurement*, vol. 55, N5, Oct. 2006, pp.1620-1627.

S. Kharkovsky, J.T. Case, M.A. Abou-Khousa, R. Zoughi and F. Hepburn, "Millimeter wave detection of localized anomalies in the space shuttle external fuel tank insulating foam," *IEEE Transactions on Instrumentation and Measurement*, vol.55, N5, Aug. 2006, pp.1250-1257.

M. Ghasr, S. Kharkovsky, R. Zoughi and R. Austin, "Comparison of near-field millimeter wave probes for detecting corrosion pit under paint," *IEEE Transactions on Instrumentation and Measurement*, vol. 54, N4, Aug. 2005, pp.1497–1504.

S. Kharkovsky, F. Hepburn, J. Walker and R. Zoughi, "Nondestructive testing of the Space Shuttle external tank foam insulation using near-field and focused millimeter wave techniques," *Materials Evaluation*, vol. 63, N5, 2005, pp.516-522.

M. F. Akay, Yu. Prokopenko and S. Kharkovsky, "Resonance characteristics of whispering gallery modes in parallel-plates type cylindrical dielectric resonators," *Microwave & Optical Technology Letters*, vol.40, N2, Jan. 20, 2004, pp.96-101.

S.N. Kharkovsky and U.C. Hasar, "Measurement of mode patterns in a high power microwave cavity," *IEEE Transactions on Instrumentation and Measurement*, vol.52, N6, Dec. 2003, pp.1815-1819.

S.N. Kharkovsky and C.D. Atis, "Nondestructive testing of cement-based specimens using the microwave free space method," *J. Materials in Civil Engineering*, vol.15, N2, April 2003, pp.200-204.

U.C. Hasar, M.F. Akay and S.N. Kharkovsky, "Determination of complex dielectric permittivity of loss materials at microwave frequencies," *J. Mathematical and Computational Applications*, vol.8, N3, 2003, pp.319-326.

S.N. Kharkovsky, M.F. Akay, U.C. Hasar and C.D. Atis, "Measurement and monitoring of microwave reflection and transmission properties of cement-based specimens," *IEEE Transactions on Instrumentation and Measurement*, vol.51, N6, Dec. 2002, pp.1210-1218.

Z.E. Eremenko, Yu.F. Filipov, S.N. Kharkovsky, V.V. Kutuzov and A.E. Kogut, "Whispering gallery modes in shielded hemispherical dielectric resonators," *IEEE Transactions on Microwave Theory and Technique*, vol.50, N11, Nov. 2002, pp.2647-2649.

Conference papers

S. Kharkovsky, R. Zoughi and F. Hepburn, "High Resolution Millimeter Wave Detection of Vertical Cracks in the Space Shuttle External Tank Spray-on-Foam Insulation (SOFI)," in *Review of Progress in Quantitative Nondestructive Evaluation Vol. 26B*, Portland, Oregon, July 31- August 5, 2006, AIP Conference Proceedings, edited by D.O. Thompson and D.E. Chimenti, vol.894, American Institute of Physics, Melville, NY, 2007, pp. 1065-1070.

M.A. Abou-Khousa, A. Ryley, S. Kharkovsky, R. Zoughi, D. Daniels, N. Kreitingner and G. Steffes, "Comparison of X-ray, Millimeter Wave, Shearography and Through-Transmission Ultrasonic Methods for Inspection of Honeycomb Composites," in *Review of Progress in Quantitative Nondestructive Evaluation Vol. 26B*, Portland, Oregon, July 31- August 5, 2006, AIP Conference Proceedings, edited by D.O. Thompson and D.E. Chimenti, vol.894, American Institute of Physics, Melville, NY, 2007, pp. 999-1006.

S. Kharkovsky, A.C. Ryley, V. Stephen and R. Zoughi, "Dual-Polarized Microwave Near-Field Reflectometer for Non-Invasive Inspection of Carbon Fiber Reinforced Polymer (CFRP) Strengthened Structures," *Proc. of the IEEE Instrumentation and Measurement Technology Conference*, Sorrento, Italy, 2006, pp.2108-2111.

M. Abou-Khousa, S. Kharkovsky, and R. Zoughi, "Embedded Flaw Spatial Distribution Retrieval from Microwave and Millimeter Wave Images," *Proceedings of the 5th International Workshop on Structural Health Monitoring (IWSHM 2005)*, Stanford University, Stanford, CA, Sept. 12-14, 2005, pp. 796-803.

M. Ghasr, B.J. Carroll, S. Kharkovsky, R. Zoughi and R. Austin, "Pit Size Evaluation using Millimeter Wave Nondestructive Evaluation Method," *Proceedings of 2nd International Conference on Electromagnetic Near-Field Characterization & Imaging (ICONIC 2005)*, Barcelona, Spain, 8 – 10 June 2005, pp. 433 – 438.

S. Kharkovsky, J.T. Case, R. Zoughi and F. Hepburn, "Millimeter Wave Detection of Localized Anomalies in the Space Shuttle External Fuel Tank Insulating Foam and Acreage Heat Tiles," *Proc. of the IEEE Instrumentation and Measurement Technology Conference*, Ottawa, Canada, vol.2, 2005, pp.1527- 1530.

V. Stephen, S. Kharkovsky, J. Nadakuduti and R. Zoughi, "Microwave Field Measurement of Delaminations in CFRP Concrete Members in a Bridge," *Proceedings of the World Conference on Nondestructive Testing (WCNDT)*, p. 5, Montreal, Canada, August 30-September 3, 2004.

S. Kharkovsky and R. Zoughi, "Application of Near-Field Microwave and Millimeter Wave Nondestructive Testing for Evaluation of Fiber Breakage and Orientation in Carbon Composite Patches," *Proceedings of the Thirty First Annual Review of Progress in Quantitative Nondestructive Evaluation*, vol. 24A, pp.554-561, Golden, Co, July 25-30, 2004.

M. Ghasr, S. Kharkovsky, R. Zoughi and R. Austin, "Comparison of Near-Field Millimeter Wave Probes for Detecting Corrosion Pit under Paint," *Proceedings of 21st IEEE Instrumentation and Measurement Technology Conference*, Como, Italy, vol.3, 2004, pp.2240 -2244.

S.N. Kharkovsky, C.D. Atis and U.C. Hasar, "Characterization of Cement-Based Specimens using Reflection and Transmission Measurements," *Proceedings of 11th International Symposium on Nondestructive Characterization of Materials*, Berlin, Germany, Nov.2002, pp.351-358.

Scientific and professional societies of which a member:

Senior Member IEEE, MTT and IM Societies.

Institutional and professional services in the last five years:

February 2007 – present Associate Editor, IEEE Transactions on Instrumentation and Measurement.

In the last five years reviewed manuscripts for: Applied Physics Letters, Journal of Applied Physics, IEEE Transactions on Instrumentation and Measurement, IEEE Transactions on Antenna and Propagation, Research in Nondestructive Evaluation.