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Udi Wengrowicz - Curriculum Vitae

NRCN, POB 9001, Beer Sheva 84190, ISRAEL

Personal Details

Name: Udi Wengrowicz
Born: Argentina, September 16, 1958
Address at home: 1 Yeelim St., Metar 85025, Israel
Marital status: Married, 3 children
Citizenship: Israeli
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Education

1980 – 1985: B.Sc. in Electrical and Computer Engineering, Department of Electrical and Computer Engineering, Ben-Gurion University, Beer Sheva, Israel.
1995 – 1999: M.Sc. in Nuclear Engineering, Department of Nuclear Engineering, Ben-Gurion University, Beer Sheva, Israel.
2016 - 2020: Ph.D. in Nuclear Engineering, Department of Nuclear Engineering, Ben-Gurion University, Beer Sheva, Israel .

Employment

2009 - Present: NRCN, Electronic and Control Division, Senior Engineer and manager of Head of the R&D of new sensors and instrumentation for radiation measurement.
Duties: Leading research of innovative gamma and neutron detectors, supervisor of NRCN R&D engineers and advisor of students in their MSc thesis.
2008 - 2009: Inversa Systems Ltd., UNB (University of New Brunswick), NB, Canada. Sabbatical R&D Engineer.
Duties: Front End Electronics, Embedded Software and Gamma Detectors R&D for DBT – Deep Backscatter Tomography.

- 2006 - 2008: NRCN, Electronic and Control Division, Head of the Electronics Development Department. Senior Electronics and Health Physics design engineer.
Duties: Management, supervision and guidance of a group of instrumentation and system design engineers and technicians.
- 1992 - 2005: R&D Engineering and project leader for development of health physics, safety and medical measurement instrumentation, Electronics Development Dept. NRCN.
Duties: R&D of health physics instrumentation: sensors such as scintillators coupled to PMT or photodiodes, Geiger-Mullers (GM), ionizing chambers and proportional detectors, front end electronics for pulse shaping, microcontrollers and peripheral integrated circuits (IC), algorithms and real time software.
- 1999-2000: Sabbatical at the Department of Nuclear Engineering, Ben-Gurion University-Negev, Beer-Sheva.
- 1986-1992: Electronics development engineering, Electronics Development Dept. NRCN.

Main Research Interest

1. Scintillators, PMTs and SiPMs for neutron and gamma instrumentation for Home-Land Security applications.
2. Solid State Detectors for X and Gamma Rays
3. Ion chambers and Proportional counters for neutron detection
4. Charged particles, Gamma and Neutron detection instrumentation.
5. Algorithms and real time software for measurement of ionizing radiation.
6. Pulse processing and front-end electronics.
7. Detectors and Processing systems for Industrial Deep Backscatter Tomography

Partial List of Publications

- 1. A New Approach to Portable Radiation Monitoring**
J. Paran, D. Tirosh, N. Tal, U. Wengrowicz and Y. Gabay
IAEC, Research Laboratories Annual Report 1986, pp 210.
- 2. Data Averaging in Radiation Survey Monitors**
N. Tal, D. Tirosh, U. Wengrowicz and Y. Gabay.
IAEC, Research Laboratories Annual Report 1989, pp 179.
- 3. BAKNET - Communication Network for Radiation Monitoring Devices (97/151)**
Y. Cohen, U. Wengrowicz, D. Tirosh and D. Barak
The Second Regional Mediterranean Congress on Radiation Protection, IRPA 20th Regional Congress, Program and Extended Abstracts, November 16-20, 1997, Tel-Aviv, Israel, pp 211.
- 4. Continuous Water Monitoring System for Alpha and Beta Emitters (97/152)**
H. Assido, U. Wengrowicz, D. Tirosh, S. Piestun, S. Levinson, U. German, and Y. Laichter
The Second Regional Mediterranean Congress on Radiation Protection, IRPA 20th Regional Congress, Program and Extended Abstracts, November 16-20, 1997, Tel-Aviv, Israel, pp 218.
- 5. Radiodine Monitoring System – “RIS-125”**
Y. Mazor, U. Wengrowicz, E. Dolev, H. Assido, D. Tirosh, S. Levinson, I. Belaish, T. Kravchick, U. German, and O. Peled
European Journal of Nuclear Medicine, Volume 26, Number 9, 1999, pp1190, PS-551
- 6. RAM R-200 - A Portable Ruggedized Radiation Monitoring System**
U. Wengrowicz, T. Mazor, H. Assido, Y. Kadmon, D. Tirosh and G. Shani
The 20th Conference of the Nuclear Societies in Israel, Final Program & Book of Abstracts, December 20-21, 1999, Hyatt Regency Hotel, Dead Sea, Israel, pp 73.
- 7. Innovative Portable Radiation Monitoring System**
U. Wengrowicz, T. Mazor, M. Cahana, E. Dolev, R. Gihon, Y. Kadmon, M. Ellenbogen and D. Tirosh
IRPA 10, The 10th International Congress of the International Radiation Protection Association, Programme & Abstracts, May 14 – 19, 2000 Hiroshima, Japan, pp 215, P-3b-213.
- 8. A Continuous Air Monitoring Sampler for 125I – “RIS-125”**
S. Levinson, I. Belaish, T. Kravchik, U. German, O. Pelled, Y. Mazor, U. Wengrowicz, E. Dolev, H. Assido, D. Tirosh, Y. Laichter.
IRPA 10, The 10th International Congress of the International Radiation Protection Association, Programme & Abstracts, May 14 – 19, 2000 Hiroshima, Japan, pp 86, P-3a-149.

9. **Algorithms for Radiation Measurement Data**
U. Wengrowicz, E. Vax, E. Gonen, R. Seif, Y. Kadmon and N. Tal.
The 22nd Conference of the Nuclear Societies in Israel, Book of Abstracts,
February 17-18 2004, Grand Nirvana Hotel, Dead Sea,, Israel, pp 221.
10. **PDS-100 Testing and Compliance for PRD ANSI Standard Requirements**
U. Wengrowicz, A. Manor, E. Dolev, R. Seif, M. Ghelman, Y. Kadmon, D.
Tirosh, A. Osovizky, E. Vulasky, M. Ellenbogen, N. Tal
The 23th Conference of the Nuclear Societies in Israel, *Final Program & Book of
Abstracts, February 15-16 2006, Holiday Inn Crown Plaza Hotel, Dead Sea,*
Israel, pp 247-248.
11. **Portable Neutron Search Detector (2005/347)**
U. Wengrowicz, A. Broide, R. Seif, J. Nir, R. Gihon, E. Marcus, Y. Kadmon, D.
Tirosh.
The 23th Conference of the Nuclear Societies in Israel, Final Program & Book of
Abstracts, February 15-16 2006, Holiday Inn Crown Plaza Hotel, Dead Sea,
Israel, pp 189-191.
12. **Development of Gamma and Neutron Personal Radiation Detector**
E. Dolev, U. Wengrowicz, A. Manor, I. Brandys, R. Atias, D. Tirosh, A.
Osovizky, M. Ellenbogen, T. Mazor, N. Tal
The 23th Conference of the Nuclear Societies in Israel, Final Program & Book of
Abstracts, February 15-16 2006, Holiday Inn Crown Plaza Hotel, Dead Sea,
Israel, pp 184-185.
13. **Radiation Monitoring System for Explosive and Narcotic Portal**
A. Croitoru, U. Wengrowicz, Y. Gabay, E. Gonen, R. Atias, Y. Kadmon, D.
Tirosh.
The 23th Conference of the Nuclear Societies in Israel, Final Program & Book of
Abstracts, February 15-16 2006, Holiday Inn Crown Plaza Hotel, Dead Sea,
Israel, pp 253-255.
14. **Development of PRD Instrument with MCA and Wireless Communication**
A. Manor, U. Wengrowicz, E. Dolev, R. Seif, Y. Kadmon, D. Tirosh, E. Vulasky,
M. Ellenbogen, N. Tal, The 23th Conference of the Nuclear Societies in Israel,
Final Program & Book of Abstracts, February 15-16 2006, Holiday Inn Crown
Plaza Hotel, Dead Sea, Israel, pp 258-260.
15. **Gamma Measurement System for Calculation of Calcium Transport in
Tomato Plants**
U. Wengrowicz, D. Tirosh, Y. Ifargan, S. Ovad, B. Sarusi, A. Bar-Tal, A.
Schwartz, R. Seligman, The 24th Conference of the Nuclear Societies in Israel,
Program & Papers, February 19-21 2008, Dead Sea, Israel, pp 58-60.

16. **Calcium Translocation and Whole Plant Transpiration noninvasive Measurements using Radio-Strontium as Tracer**
R. Seligman, A. Schwartz, A. Bar-Tal, U. Yermiyahu, D. Tirosh, Y. Ifargan, S. Ovad, B. Sarusi, U. Wengrowicz, The 24th Conference of the Nuclear Societies in Israel, Program & Papers, February 19-21 2008, Dead Sea, Israel, pp 61-65.
17. **MCNP Simulations of NSD as a Basis to Optimization for Detection of Illicit Trafficking of Radioactive Material**
S. Korotkin, U. Wengrowicz, I. Orion, The 24th Conference of the Nuclear Societies in Israel, Program & Papers, February 19-21 2008, Dead Sea, Israel, pp 61-65.
18. **Silicon Photomultiplier Technology Review and Experimental Results**
A. Osovizky, U. Wengrowicz, M. Ghelman, I. Cohenzada, V. Pushkarsky, D. Ginzburg, Y. Gabay, A. Algom, R. Seief, A. Manor, A. Beck, E. Vulaski, M. Ellenbogen, D. Tirosh, The 24th Conference of the Nuclear Societies in Israel, Program & Papers, February 19-21 2008, Dead Sea, Israel, pp 386-389.
19. **Scintillation Light Readout Using Silicon Photomultiplier-Review of Experimental Results**
A. Osovizky, U. Wengrowicz, M. Ghelman, I. Cohenzada, V. Pushkarsky, D. Ginzburg, Y. Gabay, A. Algom, R. Seief, A. Manor, A. Beck, E. Vulaski, M. Ellenbogen, D. Tirosh, Nuclear Science Symposium-Medical Imaging Conference, Dresden-Germany, 19-25 October 2008, Abstract and poster presentation, IEEE 2008 NSS-MIC Abstract Book, N30-358, pp217
20. **On the Elimination of Afterglow of CsI(Tl) Scintillation Detector**
Z.B. Alfassi, Y. Ifargan, U. Wengrowicz, M. Weinstein, Nuclear Instrumentation and Methods in Physics Research A606 (2009), pp585-588
21. **Improving the Detection Performances of Radiation Portal Monitors Using Matched Filter Algorithm**
M. Ghelman, A. Osovizky, E. Marcus, D. Ginzburg, E. Gonen, R. Seief, B. Ashkenazi, U. Wengrowicz, Y. Kadmon, Y. Cohen, International Symposium on Nuclear Safety, Book of Extended Synopses, Vienna-Austria, 30 March- 3 April 2009, Synopse and poster presentation, IAEA CN-166, pp134
22. **Detection unit optimization of a neutron searching detector using Monte Carlo Simulations**
S. Korotkin, U. Wengrowicz, I. Orion, Nuclear Instrumentation and Methods in Physics Research A660 (2011), pp154-161
23. **Time dependent measurements of induced fission for SNM interrogation**
A.Beck, I. Israelashvilli, U. Wengrowicz, E.N. Caspi, A. Osovizky, A. Ocherashvilli, H. Rennhofer, B. Pedersen, J-M. Crochemore, E. Roesgen.
Jinst-Journal of Instrumentation, 08/2013, 8(08):p08011
24. **Gamma scintillator system using boron carbide for neutron detection,**
Y. Ben-Galim, U. Wengrowicz, A. Raveh, and I. Orion, Nuclear Instrumentation and Methods in Physics Research, A756 (2014), 62–67.

25. **Measurement of Doppler Broadened line from the $^{10}\text{B}(n,\alpha)^7\text{Li}$ interaction in HPGe detector as a tool for thermal neutron detection**, Y. Ben-Galim, U. Wengrowicz, R. Moreh, I. Orion, and A. Raveh, Nuclear Instruments and Methods in Physics Research A810 (2016) 140-143.(Y. Ben-Galim and U. Wengrowicz contributed equally to this work).
26. **Alpha beta monitoring system based on a pair of simultaneous multi wire proportional counters**, U. Wengrowicz, D. Amidan, and I. Orion, Nuclear Instrumentation and Methods in Physics Research A827 (2016), pp118-123
27. **Neutron Detection Module Based on Li-Glass Scintillator and Array of SiPMs**, U. Wengrowicz et al. IEEE Transactions on Nuclear Science, Vol. 67, No.4, April 2020
28. **Neutron Detector and Methods for its Preparation**, A. Beck, U. Wengrowicz, E. Tiferet, A. Raveh, M. Chonin, I. Orion, US Patent No 11,002,868 B2, May 2021

Thesis and Thesis Supervising and Advising

1. **Development of a new generation of portable gamma radiation detection system**
U. Wengrowicz (Author), G. Shani (Supervisor), MSc thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, April 2000
2. **Afterglow Effect in γ -Ray scintillation crystals**
Y. Ifargan (Author), U. Wengrowicz (Supervisor), Z.B. Alfassi (Supervisor), MSc thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, April 2009
3. **Detection Unit Optimization of a Neutron Searching Detector using Monte Carlo Simulations**
S. Korotkin (Author), U. Wengrowicz (Advisor), I. Orion (Supervisor), MSc thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, Sep. 2009.
4. **Comparison between Boron-Carbide coated thermal neutron detectors and other detection technologies applicable to Homeland Security**
Yuval Ben Galim (Author), I. Orion, A. Raveh (Supervisors), U. Wengrowicz (Consultant), MSc thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, June 2014.
5. **Research and Optimization of Detectors of Alpha & Beta Contamination**
Dudy Amidan (Author), U. Wengrowicz (Supervisor), I. Orion (Supervisor), MSc thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, April 2016.
6. **Evaluation and Development of New Neutron Detectors**
U. Wengrowicz (Author), A. Raveh, I. Orion (Supervisors) Ph.D. thesis, Department of Nuclear Engineering, Faculty of Engineering, Ben-Gurion University of the Negev, April 2020.