

**PROFILE OF THE PERSON AUTHORIZED TO SUPERVISE  
THE INDIVIDUAL SCIENTIFIC WORK**

Title and name: **Ewa Świercz, D.Sc., Ph.D.**

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Department: **Department of Telecommunications and Electronic Equipment**

Area of expertise:

- signal theory;
- digital signal processing;
- methods of automatic detection and classification of signals;
- digital processing of radar signals;
- radar tomography;
- radar imaging SAR ISAR;
- recognition of radar signals.

Subject of the doctoral thesis (examples):

- classification of objects on the base of the extracted features from ISAR imagery;
- tomography method for the enhanced ISAR imaging;
- non-uniform sampling for recognition of signals with the polynomial phase.

Required knowledge:

- digital signal processing;
- time-frequency processing;
- processing of radar signals;
- image processing.

Some scientific publications:

- Świercz E., Grishin Yu., Janczak D. (2003): A TBD Data Processing Algorithm for a Search Radar Using the Hough Transform, International Signal Processing Conference & Global DSP EXPO, Dallas, USA.
- Świercz E. (2003): An application of the Polynomial Wigner-Ville distribution to processing of radar signals, IEEE Signal Processing'2003 Workshop, pp. 93-97, Poznań, Poland.
- Świercz E. (2006): A new method of detection of coded signals in additive chaos on the example of Barker code, Signal Processing, Elsevier No. 1, vol. 86, pp. 153-170.
- Ewa Świercz. (2009): Neural detection of parameter changes in a dynamic system using time-frequency transforms, Chapter in Computational methods and experimental measurements XIV, eds.: C. A. Brebbia, G. M. Carlomagno, WIT Press, Southampton, 2009, pp. 271-280.
- Ewa Świercz, Andrzej Pieniezny. (2009): Detection - recognition algorithm based on the Gabor transform for unknown signals embedded in unknown noise, Mathematics and Computers in Simulation, Elsevier, vol. 80, No 2, pp. 270-293.
- Ewa Świercz. (2010): Classification in Gabor time-frequency domain of non-stationary signals embedded in heavy noise with unknown statistical distribution, Elsevier, International Journal of Applied Mathematics and Computer Science, vol. 20, No 1, pp. 135-147.
- Ewa Świercz. (2011): Automatic Classification of LFM Signals for Radar Emitter Recognition Using Wavelet Decomposition and LVQ Classifier, Acta Physica Polonica A, vol. 119, No.4, pp. 488-494.

- Ewa Swiercz. (2012): Classification of parameter changes in a dynamic system with the use of wavelet analysis and neural networks, Elsevier, Advances in Engineering Software, vol.45, No 1, s.28-41.
- Ewa Swiercz (2016): Time-frequency tomographic imaging of a rotating object in a narrow-band radar, International Journal of Microwave and Wireless Technologies.
- Ewa Swiercz (2018): Image encryption algorithms based on wavelet decomposition and encryption of compressed data in wavelet domain, Przegląd Elektrotechniczny, R. 94, nr 2, s. 79-88.