PROFILE OF THE PERSON AUTHORIZED TO SUPERVISE THE INDIVIDUAL SCIENTIFIC WORK

Title and name: **Renata Markowska, D.Sc., Ph.D.**

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

Scientific area:

- electromagnetic compatibility;
- electromagnetic compatibility testing methods;
- electromagnetic compatibility related protection measures;
- impulse electromagnetic disturbances in electrical and electronic systems;
- lightning electromagnetic pulse and lightning induced effects;
- high voltage experiments for simulation of lightning electromagnetic pulse effects;
- numerical computations for simulation of electromagnetic effects of impulse disturbances;
- lightning and overvoltage protection of electrical, electronic and telecommunication systems;
- lightning protection and lightning testing standards.

Subject of the doctoral thesis (examples):

- analysis of lightning hazards in radio-communication centres, developing the guidelines for the design of lightning and overvoltage protection (PhD);
- modelling and analysis of the surge behaviour of various earth electrodes and earthing systems, developing the typing album or the software tool for the design purposes (PhD);
- modelling and analysis of the surge behaviour of a voltage sparking gap between the lightning protection components and low voltage installations, developing the typing album or the software tool for the design of separation distances (PhD);
- modelling and analysis of the coordination of operation of multi-stage surge protective devices in electrical installations of buildings, developing the guidelines for the design of overvoltage protection (PhD).

Required knowledge:

- knowledge on electrical circuits and electromagnetic field theory;
- basic knowledge and skills in numerical simulation, design and construction of electrical circuits, including PCB.

Some scientific publications:

- Markowska R., Badania modelowe właściwości statycznych i udarowych uziomu słupa elektroenergetycznego przy różnych gruntach (Modeling of static and surge properties of the power system pole grounding for various soils), Przegląd Elektrotechniczny, R. 94 No 10 / 2018, p. 65–68, doi:10.15199/48.2018.10.15.
- Markowska R.: Induced and ground potential voltage components in analysis of separation distance for lightning protection in buildings, Przegląd Elektrotechniczny, R. 92 No 12 / 2016, p. 265–270.
- Markowska R., Sowa A.: Ochrona odgromowa obiektów radiokomunikacyjnych (Lightning protection of radio-communication centres), Oficyna Wydawnicza Politechniki Białostockiej, 2013, Scientific work no 253.

- Markowska R., Sowa A.: Travelling wave phenomena in modelling of lightning threat to equipment during direct strike to the tower of GSM base station, Elektronika ir Elektrotechnika, Vol. 19, No 7 / 2013, p. 37–40.
- Markowska R.: Influence of lightning current waveshape on the separation distance required between electrical equipment and lightning protection system, Elektronika ir Elektrotechnika, Vol. 19, No 4 / 2013, p. 15–18.
- Markowska R.: Rozchodzenie się przepięć atmosferycznych w instalacji elektrycznej w obiekcie budowlanym (Propagation of lightning overvoltages in the electrical installation of a building), Wiadomości Elektrotechniczne, R. 81 No 01 / 2013, p. 14–17.
- Markowska R., Wyznaczanie odstępów izolacyjnych do celów ochrony odgromowej w budynkach (Estimation of separation distances for the purposes of lightning protection in buildings), Przegląd Elektrotechniczny, R. 88 No 11b / 2012, p. 257–260.
- Markowska R., Sowa A., Wiater J., Measurements of surge currents and potentials in a radio base station for estimation of lightning threat, Elektronika ir Elektrotechnika, 2011 m., No 1 (107) / 2011, p. 93–98.
- Markowska R., Analysis of lightning electromagnetic exposures in building electrical installation with SPD, Przegląd Elektrotechniczny, No 3 / 2010, p. 48–50.
- Markowska R., Sowa A., Wiater J., Badania zagrożenia piorunowego wybranych układów elektronicznych systemów kontrolno-pomiarowych (Lightning hazard testing of selected electronic systems for control and measurement systems), Pomiary, Automatyka, Kontrola, Vol. 56, No 2 / 2010, p. 106–109.