

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

Title and name: **prof. Tadeusz Kaczorek**

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Department: **Department of Control Engineering and Electronics**

Area of expertise:

- theory of control and systems;
- positive discrete-time and continuous-time systems
- fractional discrete-time and continuous-time linear systems;
- singular fractional linear systems and electrical circuits.

Subject of the doctoral thesis (examples):

- selected problems of theory of linear fractional order systems, positive and standard;
- descriptor nonlinear and linear systems of fractional orders;
- analysis and synthesis of selected class of linear and nonlinear fractional order systems.

Required knowledge:

- control theory;
- fundamentals of control engineering;
- ordinary differential equations;
- matrix algebra.

Some scientific publications:

- T. Kaczorek, Specific duality and stability of positive electrical circuits. Archives of Electrical Engineering, vol. 66, no. 4, 663-679, 2017.
- T. Kaczorek, Positive linear systems and electrical circuits with inverse state matrices. Electrical Review, vol. 93, no.11, 119-124, 2017.
- T. Kaczorek, Relationship between the observability of standard and fractional linear systems, Archives of Control Sciences, vol. 27, no. 3, 441-451, 2017.
- T. Kaczorek, Minimum energy control of fractional positive continuous-time linear systems using Caputo-Fabrizio definition, Bulletin of The Polish Academy of Sciences-Technical Sciences, vol. 65, no. 1, 45-51, 2017.
- T. Kaczorek, Determinants of the matrices of solutions to the standard and positive linear electrical circuits, Przegląd Elektrotechniczny, vol. 93, no.2, 278-283, 2017.
- T. Kaczorek, Specific properties of invariant, decoupling and blocking zeros of positive linear electrical circuits with zero transfer matrices, Proc. SPIE 10445, Photonics Applications in Astronomy, Communications, Industry, and High Energy Physics Experiments 2017.
- T. Kaczorek, Invariant Decoupling and Blocking Zeros of Positive Linear Electrical Circuits with Zero Transfer Matrices, Circuits Systems and Signal Processing, vol. 36, no.11, 4716-4728, 2017.
- T. Kaczorek, Extensions of the Cayley-Hamilton theorem to transfer matrices of linear systems. Proc. of Conf. Safety of Sea Transportation. The Nautical Institute, CRC Press. 355-360, 2017.
- T. Kaczorek, P.Ostalczyk, Positivity and stability of fractional discrete-time linear systems. The model without a time shift in the difference. Control and Cybernetics, vol. 46, no. 1, 27-36, 2017.
- T. Kaczorek, D. Idczak, Cauchy formula for the time-varying linear systems with Caputo derivative, Fractional Calculus and Applied Analysis, vol. 20, no. 2, 494-505, 2017.