

2. Modelling of pore media and soil water hydrological characteristics – supervisor: assoc. prof. K. Lamorski

Soil and pore media water transport characteristics, such as soil water retention curve or soil water conductivity are characteristics of a medium which determine water transport phenomena occurring in medium. Knowledge about these characteristics is indispensable for modelling and understanding water transport phenomena in soil medium.

Within the frame of doctorate thesis preparation research will be conducted on statistical and artificial intelligence (i.e. soft computing) methods of modelling the soil water retention curve and soil water conductivity. Different methodologies used for soil hydrological parameter's models development will be verified. One of research tasks will be devoted to the analysis of impact of dynamical nonequilibrium processes on soil water retention curve. The research will be based on datasets of soil hydrological and physical properties. In the research existing datasets will be utilized and laboratory investigations will be conducted to get new experimental data.

The basic tool used for modeling and data analysis will be statistical software - R.