**Li Zhilei (Ли Чжилэй) руководитель Алабугин А.А., ЮУрГУ**

**Digital model of substation inspection system based on digital twin**

**ABSTRACT**

In TW, provides a method for timely feedback and equipment problems in the process of maintenance and inspection of substations. This method is based on the digital model of the substation inspection system of the digital twin, and uses SolidWorks, 3dMax and Unity3D to realize the establishment of the model, builds the application architecture of the inspection system, clarifies the main functions of the model framework, and studies the digital space and physics The interaction mechanism of spatial correlation, and the analysis of path planning problems in digital space is focused on. For the design related to path inspection planning, an improved particle swarm algorithm based on differential evolution algorithm is proposed, and the experimental verification results show that the path convergence is optimal. An example of the interface based on the digital twin on-site inspection platform is presented.

TW purpose – In the process of patrol inspection of the substation, when there are related problems with the equipment, timely feedback and accurate maintenance are provided.

TW contains: Digital twin; build substation model; patrol inspection simulation; route optimization

TW contains energy research management: The analysis strong and weaknesses of application of Digital model of substation inspection system based on digital, opportunities and threats of its application on power generation facility; K. Levin's field of driving and restraining forces determining the success of the development and application of re-search in the electric power industry; Gantt's schedule of actions for implementation of application of Digital model of substation inspection system based on digital twin.