

ABSTRACT

The diploma project is completed on 68 pages, 16 figures, 5 tables and 27 links.

Object of study – Lithium-ion batteries, which provide energy storage are designed to stabilize the operation of electrical networks.

Subject of research – Design of high-capacity energy storage devices for the implementation of continuous and stable power supply. Mathematical model of lithium-ion batteries, which provide energy storage and are designed to stabilize the operation of electrical networks, based on fractional order calculus.

The aim – Development of the LIB model based on fractional calculus.

Publications on research topics – Charniak O.C., *Khomenko O.V.* Modeling of the scheme and modes of operation of the electric network of IPS of Ukraine // International scientific and technical journal of young scientists, graduate students and students "Modern problems of electric power engineering and automation". - 2018.

Key words: RENEWABLE ENERGY SOURCES, INTEGRATED POWER SYSTEM OF UKRAINE, BATTERY ENERGY STORAGE SYSTEMS, FRACTIONAL ORDER DERIVATIVE, LITHIUM-ION BATTERY, SINGLE PARTICLE MODEL, EQUIVALENT CIRCUIT BATTERY MODEL, MICROGRID

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141.3103.003.ДБ