# ANALYSIS OF HEAT TRANSFER IN POROUS MEDIA

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Porous media are widely used in many fields of engineering. They play an important role in the accumulation of heat. Energy storage will not only provide a stable power supply to consumers, but also improve the utilization of energy due to the accumulation of peak and low potential energy that can not be obtained without its corresponding transformations. Therefore the problem of the most efficient storage is undoubtedly important. The use of thermal storage can significantly improve the utilization of renewable energy sources.

**The purpose of research** - the study of the temperature field bounded cylinder with internal heat source.

**Materials and methods of research.** It can be assumed that the movement of fluid in the tank and therefore a slight basic heat transfer process is thermal conductivity.

Thus, the problem is formulated as follows: given a limited cylinder that initially has a temperature equal to the ambient temperature. At the initial time the cylinder surface and the surface of the ends begin to heat up at a constant speed.

According to the formulation of the problem mathematical model is formed in a two-dimensional heat equation in cylindrical coordinates.

The general solution of the problem formulated based on the method of integral transforms Hankel and Laplace.

The results of research. To optimize energy systems currently in use the following methods:

- Graph-theoretic constructions;
- Eksergoekonomical;
- Entropy.

When optimizing electrical systems by entropy analysis is not necessary to operate the indicators of the cost elements of the investigated options for the

structure installation. It is therefore advisable to apply this method for energy performance.

Entropy method of analysis and eksergoekonomical optimization concept received special development in the past two or three decades of academic work to run and A. T. Morozyuk.

Porous media play an important role not only in technical areas, but also in nature, biology and deserve thorough analysis. It should be noted exceptional role in the research termobiological phenomena Prigogine and his scientific school.