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## **EXPERIMENTAL ANALYSIS OF SOIL HEAT EXTRACTION SYSTEMS**

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### **Abstract**

A 5 kW heat pump water-water function on R22 was built in the Renewable Energy Source Laboratory within the Petroleum - Gas University of Ploiesti. The pump was equipped with 4 types of heat extraction systems from the soil: a groundwater well, a 40 m vertical well with a recirculation loop, a system of spiral loops buried at 2 m depth and a 60 m simple loop. This paper deals with the description of the performance obtained with the heat pump operating on a simple polyethylene loop. The experiment confirms that for this type of exchanger there occurs a decline of the thermal power extracted from soil and that the best mathematical description of this phenomenon is obtained with the function generated by the hyperbolic decline.

*Key words:* decline, heat, pump, soil, thermal

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