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## **EXPERIMENTAL AND THEORETICAL ANALYSES ON THERMAL PERFORMANCE OF A SOLAR AIR COLLECTOR**

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### **Abstract**

The present contribution describes the investigation of a solar air collector for space heating in order to develop more efficient and cost effective energy process. Various configurations of absorber and different air flows through the collector were tested. The influence of the air mass flow on the air outlet temperature and thermal efficiency has been studied. The thermal efficiency, fluid outlet temperature, heat increase and heat losses of the collector are calculated depending on the collector geometry, fluid properties, fluid inlet temperature, air flow rate, solar insulation and ambient temperature.

*Key words:* solar air collector, solar radiation, thermodynamic performance

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