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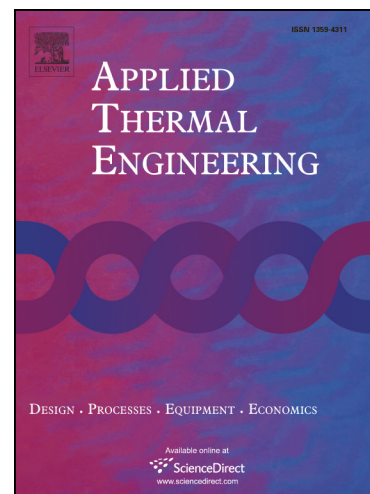
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# Numerical study and experimental validation on the optimization of the large size solar collector

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## **Abstract**

This work presents numerical simulations and experimental validation aimed at optimizing the design of large size flat-plate solar collectors (has a profile area of 10.04 m<sup>2</sup>). The large size collector with the advantages of high land use efficiency, compact structure, better thermal insulation and simple connection, are widely used in large scale heating systems (like seasonal storage system). Consequently, the study and optimization (thermal and antifreeze performance) of the large size collector are essential for the further application of the large size collector. However, unlike the conventional small collector, the large size collector has high flow and temperature ununiformity. The study of the large size collector should be treated differently with the conventional small collector. Meanwhile, the thermal stress

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