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## ENVIRONMENTALLY FRIENDLY, IMPROVED SOLAR THERMAL COLLECTORS

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### Abstract

During the last five-years, the worldwide renewable energy sources grew at rates of 10–60 percent annually for many technologies, as improvements are made in all areas. This paper proposes the use of micro-channeled heat exchangers in solar panels to improve the heat exchange to the working fluid. The aim is to reduce the overall surface of the solar panel, since the authors developed prior works and published papers in the area of fluid flow and heat transfer in microstructures, as well as on heat transfer augmentation in microstructures. Results obtained show an improved efficiency in energy transfer from solar thermal radiation to heated agent. The proposed solution may be implemented to design solar panels of various shapes and sizes for application in tight spaces or in areas where the solar radiation is less effective.

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