Department : **Mechanical**

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Guided By

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Project Title

PERFORMANCE AND ANALYSIS OF PARABOLIC TROUGH COLLECTOR SOLAR WATER HEATER

Abstract:

Parabolic trough collectors are a low cost implementation of concentrated solar power technology that focuses incident sunlight onto a tube filled with a heat transfer fluid. The efficiency and cost of the parabolic trough collector designs is influenced by structural stiffness, choice of materials, assembly tolerances, mirror cleanliness and wear. Current performance estimates of solar trough optical field efficiencies are 54.2%. The goal of this research is to identify general methods and specific design concepts for achieving increased collector efficiency. This report has investigated improvements in the design of a parabolic trough module by looking first at the overall structural concept of the collector to reduce complexity while maintaining structural stability under wind loading conditions.

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