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Design Considerations of a Solid State Thermal Energy Storage¹ MOHAMMAD JANBOZORGI, SAMMY HOUSSAINY, ARIANA THACKER, PEGGY IP, WALID ISMAIL, PIROUZ KAVEHPOUR, University of California, Los Angeles — With the growing governmental restrictions on carbon emission, renewable energies are becoming more prevalent. A reliable use of a renewable source however requires a built-in storage to overcome the inherent intermittent nature of the available energy. Thermal design of a solid state energy storage has been investigated for optimal performance. The impact of flow regime, laminar vs. turbulent, on the design and sizing of the system is also studied. The implications of low thermal conductivity of the storage material are discussed and a design that maximizes the round trip efficiency is presented.

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