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Sommario/riassunto	Long description: The novel concept of a particle receiver for high-temperature concentrating solar applications was developed and investigated in the present work. The so-called Centrifugal Particle Receiver (CentRec) uses small bauxite particles as absorber, heat transfer and storage media at the same time. Due to advantageous optical and thermal properties, the particles can be heated up to 1000 degree Celsius without sintering in the storage. High thermal efficiencies at high outlet temperatures are expected indicating a promising way for cost reduction in solar power tower applications. A prototype in laboratory scale was designed, built and tested in order to demonstrate the feasibility and potential of the proposed concept. The expected simple control capability of the receiver could be verified and the target temperature of 900 degree Celsius successfully demonstrated. A thermal efficiency of > 85% is calculated by a validated corresponding numerical model for a particle outlet temperature of 900 degree Celsius and a design power of 1 MW/m ² .