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## conceptual design of closed-loop HTS magnet with thermal switch

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**Abstract:** A closed-loop high temperature superconducting (HTS) magnet with thermal switch, wound by REBCO wire, is proposed, which can be magnetized by flux pump and operated in persistent current mode. In this paper, the structure, fabrication and principle of the magnet is explained. Because the magnet has the structure of thermal switch, it can be excited to saturation efficiently. Numerical analysis is carried out to investigate the excitation process of the magnet. Experiment is also applied on the model magnet to verify the feasibility of the model magnet. The result confirms that the suggested magnet can be operated in persistent current mode and the principles of the magnet and the flux pump are reasonable.

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