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**Laser-induced topological superconductivity in cuprate thin films** KAZUAKI TAKASAN, AKITO DAIDO, NORIO KAWAKAMI, YOUICHI YANASE, Kyoto University — We propose a possible way to realize topological superconductivity with application of laser light to superconducting cuprate thin films. Applying Floquet theory to a model of  $d$ -wave superconductors with Rashba spin-orbit coupling, we derive the effective model and discuss its topological nature. Interplay of the Rashba spin-orbit coupling and the laser light effect induces the synthetic magnetic fields, thus making the system gapped. Then the system acquires the topologically non-trivial nature which is characterized by Chern number. The synthetic magnetic fields do not create the vortices in superconductors, and thus the proposed scheme provides a promising way to dynamically realize a topological superconductor in cuprates. We also discuss an experimental way to detect the signature.

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