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**SPT 2-Channel Kondo Model in the Structure of Normal
Metal/Quantum Dot/ $\text{\emph{DIII}}$ -class Topological Superconductor**

WEI-JIANG GONG, university of texas at dallas, ZHEN GAO, northeastern university, China — We investigate the Kondo effect in a structure which is constructed by embedding one quantum dot between a normal metal and a $\text{\emph{DIII}}$ -class topological superconductor supporting Majorana doublets at its ends. It is observed that Kondo correlation occurs between the localized state in the dot and two continuum states simultaneously, i.e., the continuum state in the metal and the continuum Andreev reflection state between the metal and topological superconductor. As a result, the Kondo model Hamiltonian is topologically protected by the $SU(2) \times Z_2^T$ symmetry. More interestingly, two new Kondo temperatures appear in this system, in comparison with the normal Kondo model. This phenomenon exactly reflects the special role of Majorana doublet in tuning the Kondo effect.

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