Search for a Heavy Exotic partner of the top quark with charge $5/3$

SAPTAPARNA BHATTACHARYA, Brown University, CMS COLLABORATION — Presented is a study of searches for two exotic particles - a heavy top quark partner with a fractional charge of $5/3$, $T_{5/3}$, and its partner, the heavy $B$ quark with charge $-1/3$. These particles decay to a top quark and a $W$ boson, leading to very busy events with multi-leptons and multi-jets. Processes where same-sign dileptons are produced are considered. The backgrounds are predominantly from $t\bar{t}$, QCD multi-jets, $Z$+jets, $t\bar{t}WW$, $t\bar{t}W$ and multiple-$W$+jets production. A study using the data collected by the CMS detector at the LHC during 2011 has been performed.