Holeums as potential candidates of short lived gamma ray bursts

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Gamma ray bursts (GRBs) have endured as one of astronomy's greatest mysteries. BATSE instruments on Compton Gamma Ray observatory show that (GRBs) occur in at least two distinct types. Long bursts last for few seconds to several minutes, and short bursts last for less than 2 seconds. The two burst populations form two separate maxima when burst numbers are plotted against duration. Long bursts originate at cosmological distances and are believed to be related predominately to the collapse of massive stars. Short gamma rays bursts are more difficult to detect and their origin is controversial. For this class of gamma ray bursts several models were proposed. These include neutron star mergers, and neutron star collapse to strange-quark star. Difficulties associated with these models are discussed. A plausible model of the origin of GRBs may take into account their observered features, distances, distributions, and frequency of occurrence. It was shown that these requirements are in favour of an entirely new class of objects whose distribution extends to near the edge of the observable universe. Recent work by Chavda et al. suggest that primordial black holes form a rather stable gravitational bound states called Holeums. These states are created in the early stages of the big bang. We investigate in this paper the process of annihilation of these bound states giving rise to short-lived gamma ray bursts. We argue that such a process exhibits a large dynamical range of characteristics and can encompass a wide spectrum of the observed features of short gamma ray bursts.