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Search for Baryon Junction with Relativistic Heavy Ion Collisions at STAR

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Conventionally, quarks are believed to carry a baryon number of B = 1/3. Therefore, three quarks combine to form a baryon with B = 1, while a quark-antiquark pair form a meson with B = 0. Meanwhile, an alternative picture was proposed in early 1970s, which stipulates that valence quarks are connected by gluons in a Y-shaped topological structure, called the baryon (or gluon) junction. It is this topological configuration of the gluons that is posited to trace the baryon number. Neither scenario has been verified experimentally. In this talk, the search for baryon junction using the heavy collisions data collected by the STAR experiment will be presented. Physics implication will also be discussed.

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