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## Studies of beauty quark hadronization with $B_S^0$ in PbPb collisions with the CMS detector

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Beauty quarks are considered to be one of the best probes of the strongly interacting medium created in relativistic heavy-ion collisions as they are predominantly produced via initial hard scatterings. Measurements of B mesons provide information on the diffusion of beauty quarks as well as the flavor dependence of inmedium energy loss. In these studies, clarifying the hadronization mechanism is crucial for understanding the transport properties of beauty quarks. Measurements of  $B_S^0$  production can shed light on the mechanisms of beauty recombination in the medium. In addition, measurements of the production of mesons containing both strange and beauty quarks can provide more information about strangeness enhancement in the quark-gluon plasma. Measurements of the ratio of  $B_S^0$  over  $B^+$  yields in PbPb collisions at a nucleon-nucleon center-of-mass energy of 5.02 TeV, using full reconstruction of the B mesons with the CMS detector, are presented.

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