



Contribution ID: 155

Type: **Talk**

Analysis of the b_1 meson decay in local tensor bilinear representation

Friday 3 August 2018 17:20 (20 minutes)

We explore the validity of vector meson dominance in the radiative decay of the $b_1(1235)$ meson. In order to explain the violation of the vector meson dominance hypothesis in this decay process, we investigate a model where the b_1 meson strongly couples with the local current in tensor bilinear representation. The tensor representation is investigated in the framework of the operator product expansion (OPE) and we found a low energy decay process that does not follow the usual vector meson dominance hypothesis. In the OPE of the tensor current, four-quark operators are leading quark contribution and their value can be inferred from the QCD vacuum structure. The ω -like intermediate meson state of quantum numbers $I^G(J^{PC}) = 0^-(1^{--})$ is found to have a nontrivial role in the decay process of the b_1 meson. The spectral structure of the ω -like state is found to be close to a π - ρ hybrid state, which provides a mechanism that evades the usual vector meson dominance hypothesis. Precise measurements of various decay channels of the b_1 meson are, therefore, required to unravel the internal structure of axial vector mesons.

Primary authors: Dr JEONG, Kie Sang (Asia Pacific Center for Theoretical Physics); LEE, Su Hounng (Yonsei University); Prof. OH, Yongseok (Kyungpook National University)

Presenter: Dr JEONG, Kie Sang (Asia Pacific Center for Theoretical Physics)

Session Classification: Light quarks

Track Classification: B: Light quarks