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Ultralight Vector Dark Matter search with KAGRA

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Gravitational Wave interferometer can be used for measuring the small displacement of the test masses due to the Ultralight vector dark matter (DM). However, the effects of the vector DM to the different mirrors are mostly common and the sensitivity is largely reduced, if they are made of the same material. Here, we would like to emphasize that KAGRA employs sapphire test masses and fused silica auxiliary mirrors. Such a difference in materials drastically enhances the sensitivity of the auxiliary length channels and enables us to probe the unexplored parameter region of, for example, the $U(1)_{B-L}$ gauge boson. In this talk, we present the current status of the pipeline for the vector DM search with KAGRA and discuss the prospects of our analysis with the data from KAGRA's first observing run in 2020.

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