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Cosmology and terrestrials signals of sexaquark dark matter

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The sexaquark, a hypothetical stable and neutral six-quark state, has been recently proposed as a dark matter candidate. Here, I argue it is very unlikely sexaquarks could consistently compose more than a billionth of the dark matter abundance for a wide range of scattering cross sections and annihilation rates. To draw these conclusions, I connect the sexaquark freeze-out abundance to annihilation signals in neutrino experiments. I will show how the sexaquark cosmology enforces that a large contribution to dark matter is only possible with a similarly large antisexaquark population. This population, however, would leave a stark annihilation signal in a detector such as Super-Kamiokande. I will summarize with how sexaquarks as a large component of the dark matter is incompatible with current observational data.

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