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Big-bang nucleosynthesis with a long-lived charged massive particle including ^4He spallation processes

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We propose helium-4 spallation processes induced by long-lived stau in supersymmetric standard models, and investigate an impact of the processes on light elements abundances. We show that, as long as the phase space of helium-4 spallation processes is open, they are more important than stau-catalyzed fusion and hence constrain the stau property.

T.-Jittoh, K.-Kohri, M.-Koike, J.-Sato, K.-Sugai, M.-Yamanaka
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Presenter: Dr YAMANAKA, Masato (KEK(High Energy Accelerator Research Organization))

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