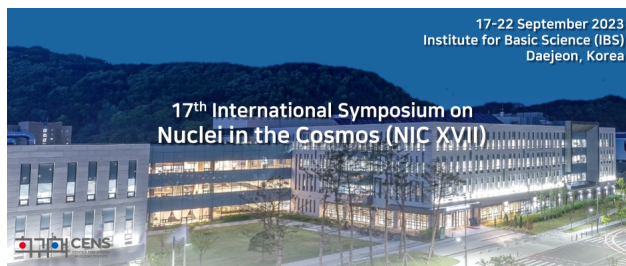


Nuclei in the Cosmos (NIC XVII)



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Neutrino process for ^{10}Be with updated relevant nuclear reactions

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We investigated ^{10}Be production mechanism in the neutrino-process in the core collapsing supernova (CCSN) by including recent updated nuclear reactions relevant to dominant production and destruction of ^{10}Be . They involve production reactions by neutrinos ^{12}C and ^{16}O and other production reactions $^{10}\text{B}(n,p)^{10}\text{Be}$, $^{11}\text{Be}(\gamma, n)^{10}\text{Be}$. Inverse reactions of the latter two reactions, $^{10}\text{Be}(p,n)^{10}\text{B}$ and $^{10}\text{Be}(n, \gamma)^{11}\text{Be}$ play destruction channels for ^{10}Be with $^{10}\text{Be}(p,\alpha)^7\text{Li}$, $^{10}\text{Be}(\alpha, n)^{13}\text{C}$. By using recent updated information of relevant reactions and nearby nuclei we tried to pin down the ambiguities from those nuclear reactions. Our results display that other nuclear reactions not discussed yet, such as neutrino reaction on ^{16}O and $^{11}\text{Be}(\gamma, n)^{10}\text{Be}$ could play vital roles for the ^{10}Be production in the CCSN.

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