

Abstract Submitted
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Electron screening and its effects on Big-Bang nucleosynthesis

JOHN FUQUA, CARLOS BERTULANI, Texas A&M University-Commerce — We study the effects of electron screening on nuclear reaction rates occurring during the Big Bang nucleosynthesis epoch. The sensitivity of the predicted elemental abundances on electron screening is studied in details. It is shown that electron screening does not produce noticeable results in the abundances unless the traditional Debye-Hückel model for the treatment of electron screening in stellar environments is enhanced by several orders of magnitude. The present work rules out electron screening as a relevant ingredient to Big Bang nucleosynthesis and other exotic possibilities for the treatment of screening, beyond the mean-field theoretical approach.

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