

Current research topics of neutrino physics

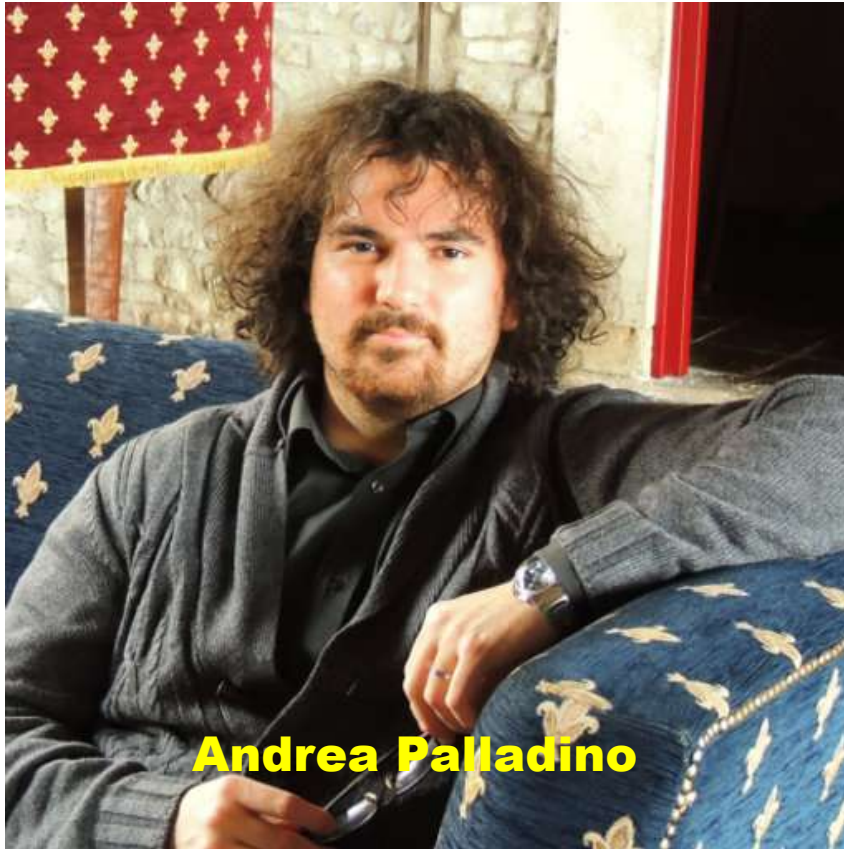
I present a few recent results from two major fields of research:
(1) neutrinos in astrophysics; (2) neutrinos in particle physics

thanking all collaborators and friends, in particular to the PhD students at GSSI, and Matthias Junker who invented the “Science Fair” concept 5yr ago

solar neutrino, supernova neutrinos, high energy neutrinos

NEUTRINOS IN ASTROPHYSICS

a review on cosmic neutrinos



Neutrino Telescopes and High-Energy Cosmic Neutrinos

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(This article belongs to the Special Issue Neutrino Oscillations)

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Abstract

In this review paper, we present the main aspects of high-energy cosmic neutrino astrophysics.

on “prompt” neutrinos



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On the relevance of prompt neutrinos for the interpretation of the IceCube signals

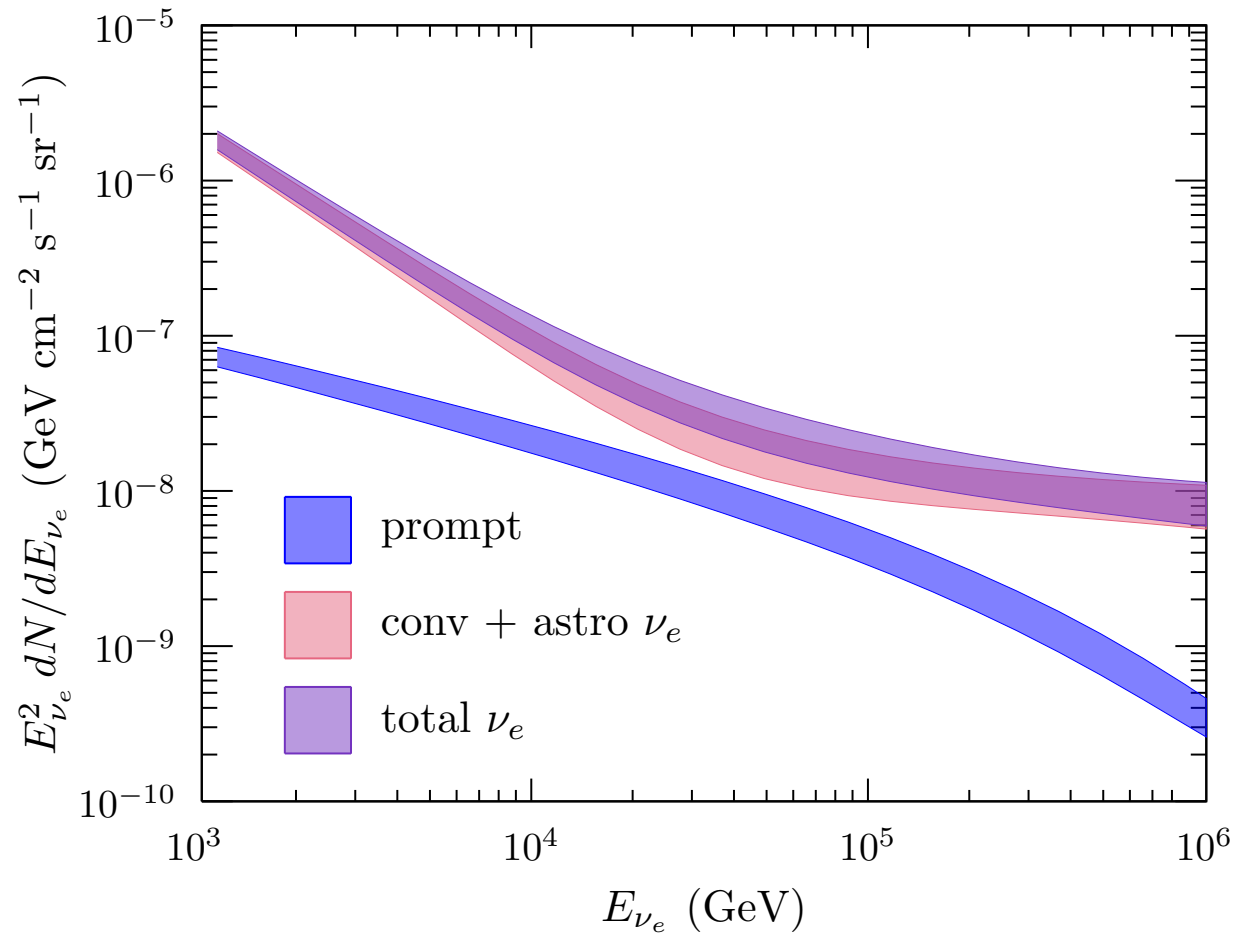
Carlo Mascaretti^a and Francesco Vissani^{a,b}

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window of opportunity with ν_e



physics reach of supernova neutrinos




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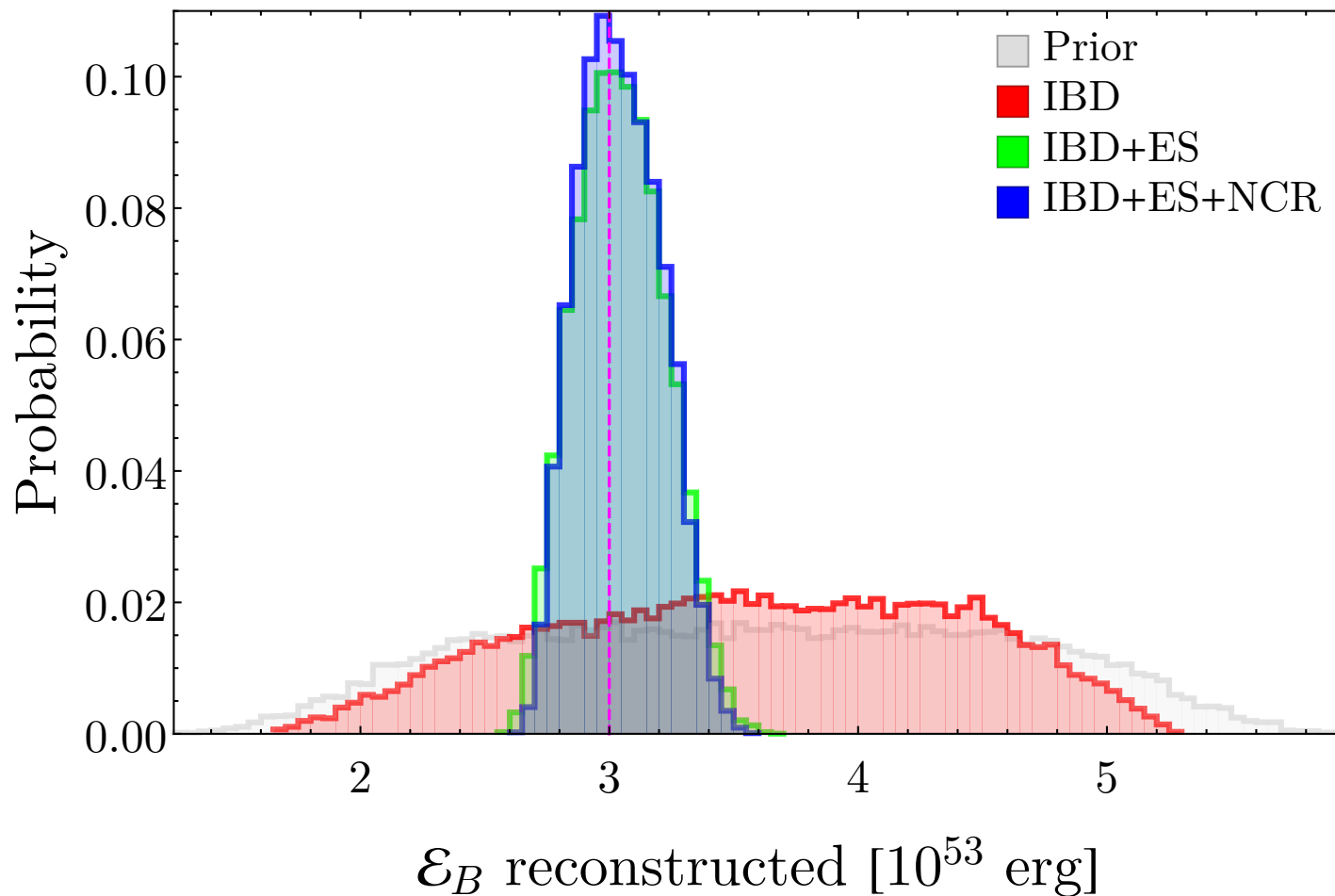
What can we learn on supernova neutrino spectra with water Cherenkov detectors?

Andrea Gallo Rosso^{a,b,c}, Francesco Vissani^b and Maria Cristina Volpe^c
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measuring total energy

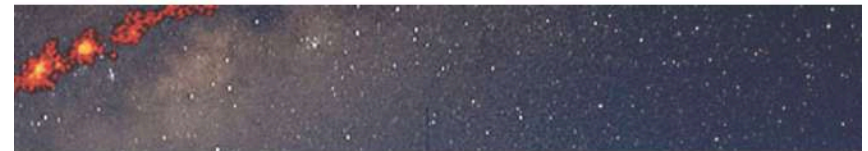


improved expectations for solar (boron) neutrinos



Astronomy
&
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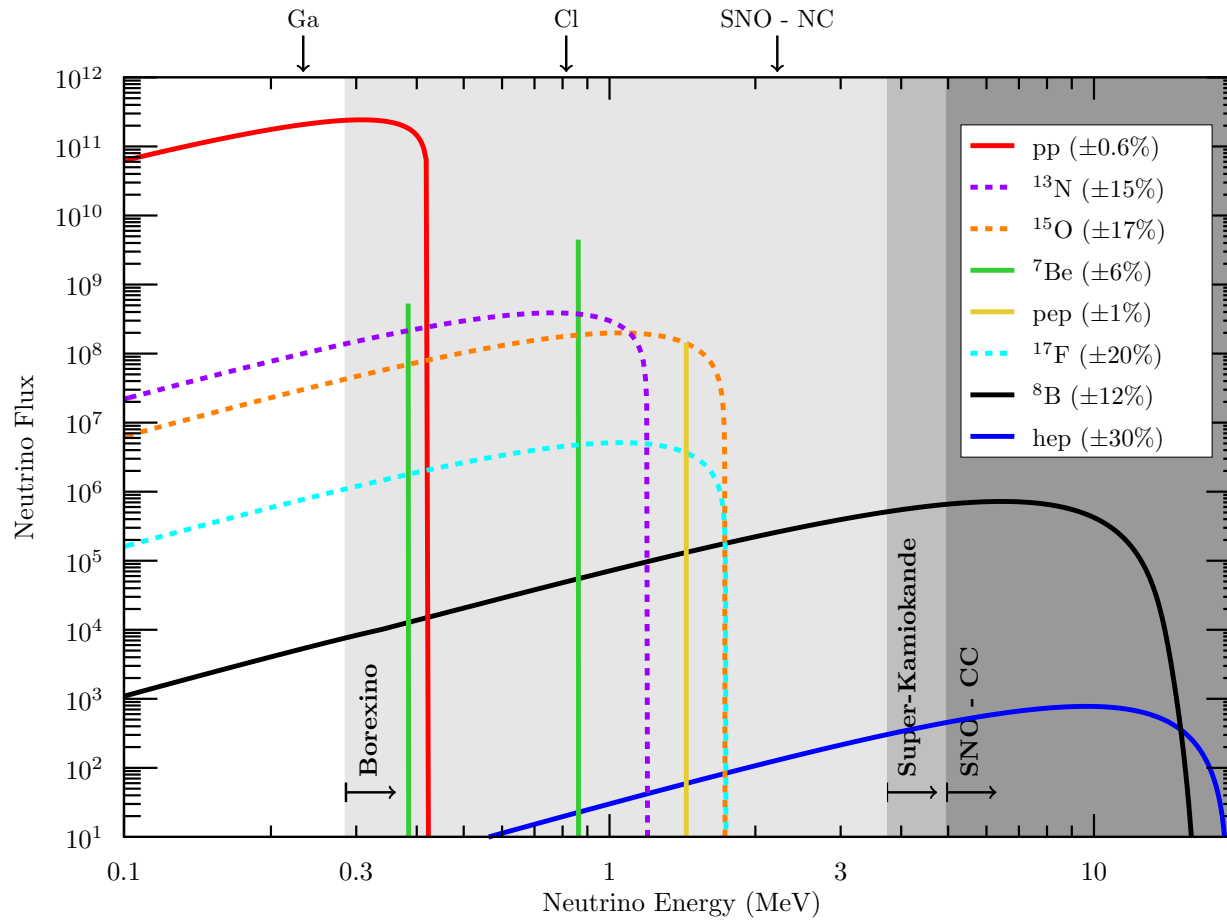
Issue	A&A Volume 623, March 2019
Article Number	A126
Number of page(s)	7
Section	The Sun
DOI	https://doi.org/10.1051/0004-6361/201834993
Published online	18 March 2019

A&A 623, A126 (2019)

Effects of a revised ${}^7\text{Be}$ e^- -capture rate on solar neutrino fluxes*

 D. Vescovi^{1,2}, L. Piersanti^{3,2}, S. Cristallo^{3,2}, M. Busso^{4,2}, F. Vissani⁵, S. Palmerini^{4,2}, S. Simonucci^{6,2} and S. Taioli^{7,8}

Borexino is unique



Gallo Rosso, Mascaretti, Palladino, FV

neutrino oscillations, neutrinos from big-bang, Majorana neutrinos

NEUTRINOS IN PARTICLE PHYSICS

neutrino oscillations



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| The State of the Art of Neutrino Physics, pp. 37-119 (2018)

Chapter 2: Introduction No Access to the Formalism of Neutrino Oscillations

G. Fantini, A. Gallo Rosso, V. Zema and F. Vissani

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The recent wide recognition of the existence of neutrino oscillations concludes the pioneer stage of

on majorana neutrino mass



Simone Marcocci

PHYSICAL REVIEW D

covering particles, fields, gravitation, and cosmology

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Empirical inference on the Majorana mass of the ordinary neutrinos

Stefano Dell'Oro, Simone Marcocci, and Francesco Vissani
Phys. Rev. D **100**, 073003 – Published 8 October 2019

Article

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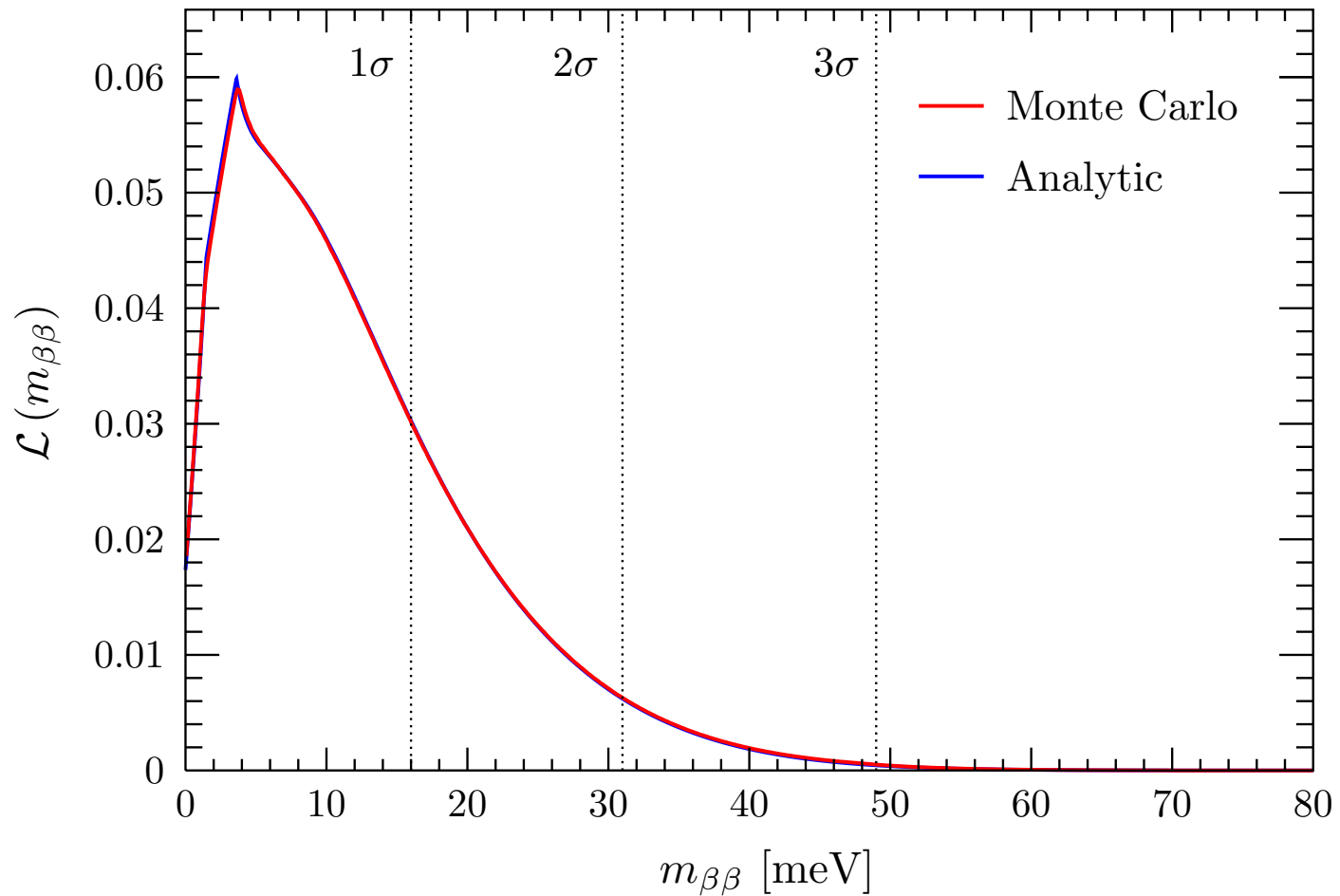
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ABSTRACT

There is a broad theoretical consensus on the idea that ordinary neutrinos have a Majorana mass, but we have no clear prediction about its value, and direct experimental measurements of this quantity are rather challenging. In this

impact of cosmological measurements



on big-bang (“relic”) neutrinos



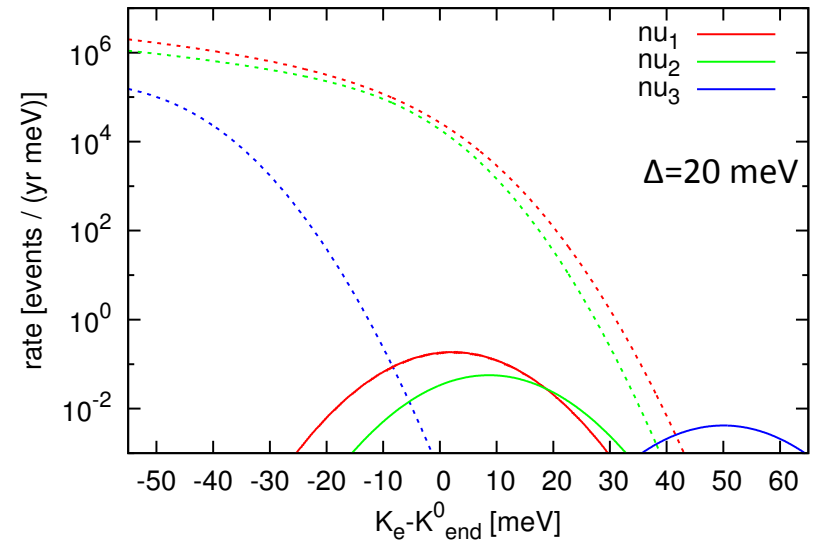
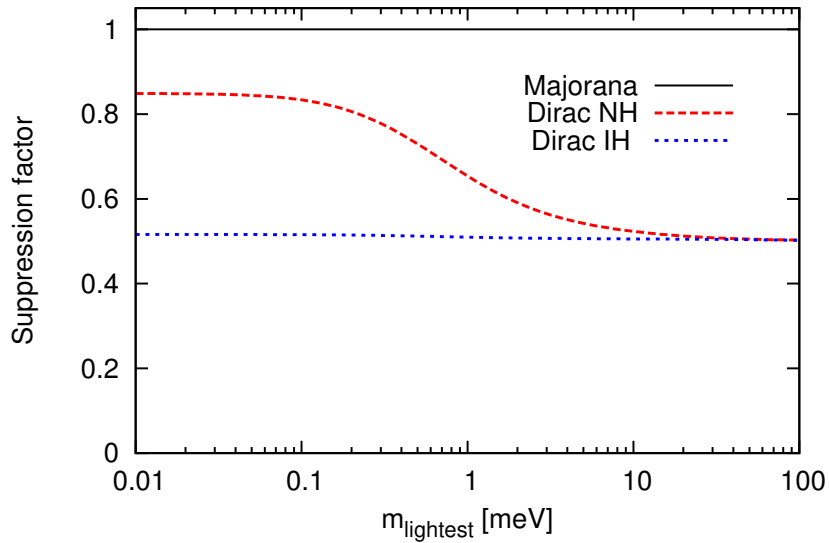
Journal of Cosmology and Astroparticle Physics

On the capture rates of big bang neutrinos by nuclei within the Dirac and Majorana hypotheses

Esteban Roulet^a and Francesco Vissani^b
Published 26 October 2018 • © 2018 IOP Publishing Ltd and Sissa Medialab

[Journal of Cosmology and Astroparticle Physics, Volume 2018, October 2018](#)

counting rates in lab



*thanks for the attention,
and
go full speed ahead
with your studies &
your PhD!!!*