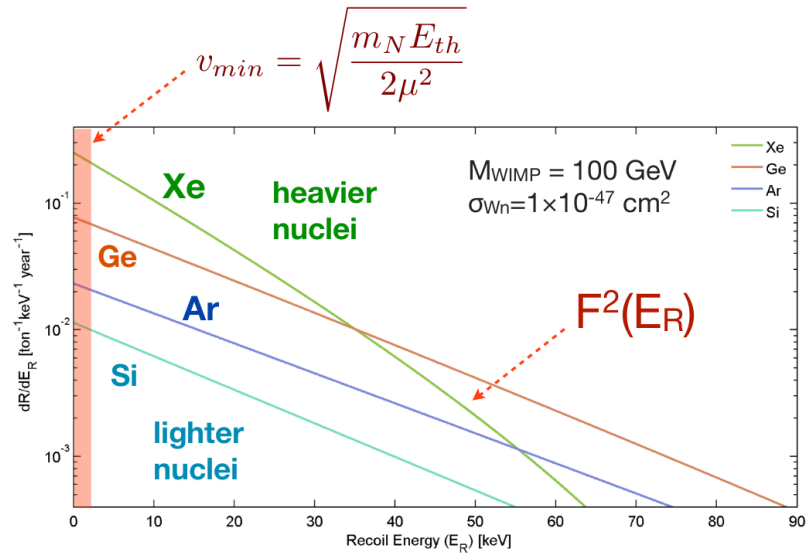


Detector Simulations for Direct Dark Matter Detection

How to get from



to



From: Baudis, Solvay-Francqui workshop on neutrinos 2015

Courtesy of the Xenon Collaboration

Outline

Monte-Carlo simulations are the go-to tool for testing detector designs before building expensive prototypes. Geant4[1] emerged as the leading choice for detector simulations in particle physics. In this project you go through the design of a WIMP-like Dark Matter detector beginning from a signal model.

Over the course of this project you will learn:

- What an MC-simulation is and how to write your own one
- How to build your own simulation with Geant4
- How to model the response of your detector
- How to assess the performance of your design

[1] For more information on Geant4 see: <https://geant4.web.cern.ch/>

Prerequisites

You should bring along:

- Some knowledge of how Object Oriented Programming works
- Intermediate knowledge in programming (some exposure to C++ would be helpful)
- Some basic knowledge in detector physics and particle physics
- Enthusiasm and energy to study everything you don't know yet
- In doubt? Don't be afraid to ask!

Sounds interesting? Contact
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