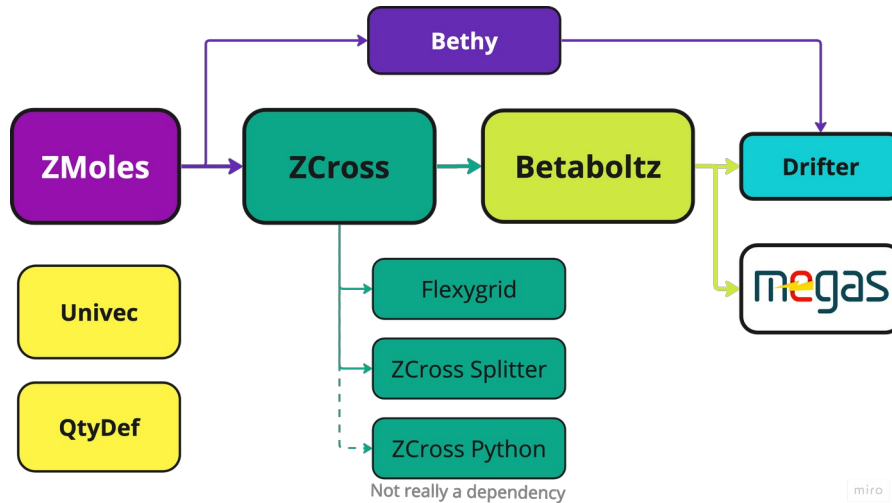**Current projects**

- *Extraction, classification and validation of cross-sections tables from Magboltz 11.18*
- *Establishing a standardized definition for molecular excitations to enhance software interoperability*
- *Study on electron and ion drifting on low E/N fields*
- *Integration of gas physics into Geant IV;*
- *Development and validation of a new simulation tool for the Micromegas detectors.*

Team

1. Calin Alexa
2. Dan Ciubotaru
3. Ioan Dinu
4. Michele Renda
5. Eduard Stan

IFIN-HH, particle physics department, Romania

Software tools we developed

Relevant public contributions

Maintaining a custom XML version of the LxCat database archive containing all the cross-section tables (incl. references) existing on LxCat.

https://us.lxcat.net/data/download.php

Relevant published articles

Betaboltz: A Monte-Carlo simulation tool for gas scattering processes
Computer Physics Communications, 267, 2021 108057
https://www.sciencedirect.com/science/article/abs/pii/S0010465521001697

A Monte-Carlo Software Tools for the Characterization of Gas Mixtures in Various Detector
Romanian Journal of Physics, 63, 2018, 7-8
https://rjp.nipne.ro/2018_63_7-8/RomJPhys.63.112.pdf

A new advance on dimensional-aware scalar, vector and matrix operations in C++
Scientific Reports volume 13, 2023, 16666
https://www.nature.com/articles/s41598-023-43683-w