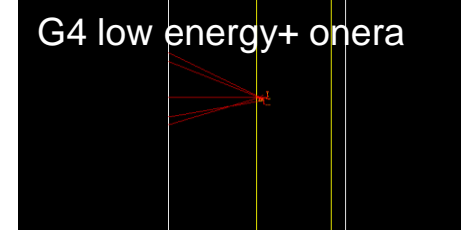
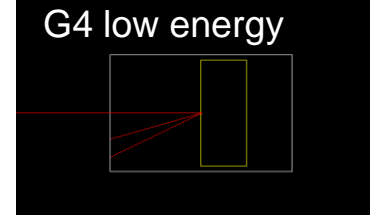
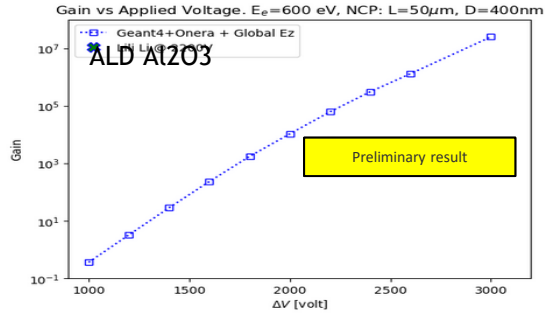
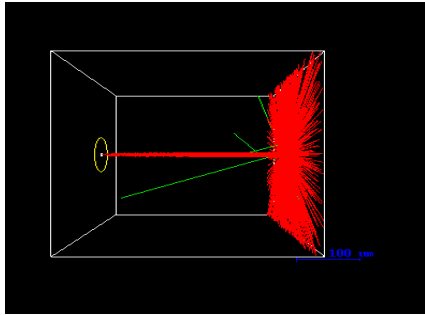


Nano-Channel Plates (NCP) IP2I-Lyon

2xStaffs +1xPost-Doc+1xPhD student (soon)

Simulations (IP2I-ONERA)

Using GEANT4+Onera microelectronics (an optimization of the stopping power for low energy particles + work function, and for certain materials when needed phonon interactions in order to simulate properly the SEY for several materials) <https://hal.science/hal-03074065/document>

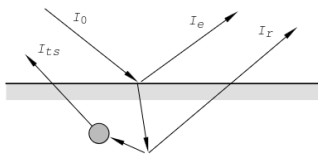


Gain vs applied Voltage for a NCP, L=50μm, D=400nm

- NCP has very **good time characteristics**. When the voltage is higher, the FWHM may reach 1ps and the gain can be higher. Lili LI based on <https://t.ly/2dcnr>
- work in progress to make simulation more realist (space charge effect, new materials, no constant EM Fields, etc..)

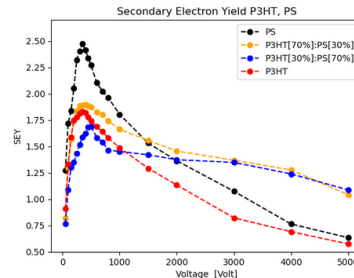
Need help as well start discussions to exchange code

- We will implement the Durham-Pivi* model in Geant4, to test new alternative materials

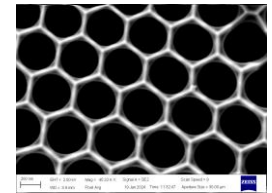


*DOI:10.1103/PhysRevSTAB.5.124404 Durham-Pivi; Probabilistic model for the simulation of secondary electron emission

In collaboration with the IMP-Lyon, we identified a good polymer (a semi-conductor) and the preliminary result are very encouraging, still needs performance studies.



- From MCP to NCP → Replace glass pores by sub-μm holes in Si or other materials



- Together with INL at Lyon. On SOI wafers, producing inverted pyramid that could be coated and used as photocathodes with very high granularity

