Interest of Bursa Uludağ University

First WG4 working meeting

Özkan ŞAHİN

13.02.2024

We are studying on avalanche formation processes:

- The non-equilibrium effect in gaseous particles detectors.
- Studying this effect require to simulate the avalanche inside the detectors both macroscopically and microscopically.
- The discrepancies between the two methods gives insight on the non-equilibrium effect.
    - When calculating Penning transfer probability for low pressures without taking non-equilibrium into account we get **negative** probability?

Strategy

1. The main strategy is to have a large set of data of simulated avalanches using both macroscopic and microscopic methods in several gas mixtures at varying pressures for different detectors
   - ➢ e.g. parallel plate and single wire for the simplicity.
2. Using this data we can try to draw conclusion and generalizations about non-equilibrium effect.
3. We can then compare these results to experimental results.
4. The first step will require many hours of simulation.
5. **Other processes like feedback, associative ionisations, transfer rate extraction for triple mixtures, eco-gases etc.**