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# Peltier-cooling-type High Performance Cloud Chamber

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## Problems in Conventional Cloud Chambers

- Needs preparation and resupply dry-ice
- Hard to long time continuing presentation
- Requires several minutes to start observation
- Radiation tracks are not observed under bad weather condition
- Limited to just observation of alpha-rays track

## Features of this products

- Dry-ice Free!
  - Clear track observation and Stable long time (hole day operation with no support is available)
  - Observation of not only Alpha-rays tracks, but also Beta-rays tracks, and furthermore, photoelectron tracks by Gamma-rays or X-rays.
- Intuitively radiological education of the difference in interaction with materials from a kind of radiation-rays
- Quite Cheap Price! Most parts are common consumer items.



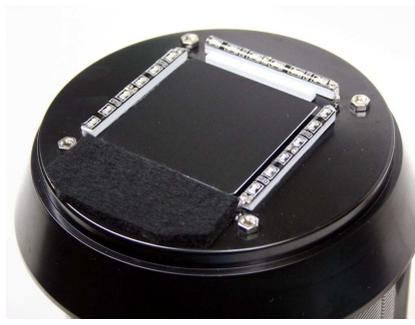
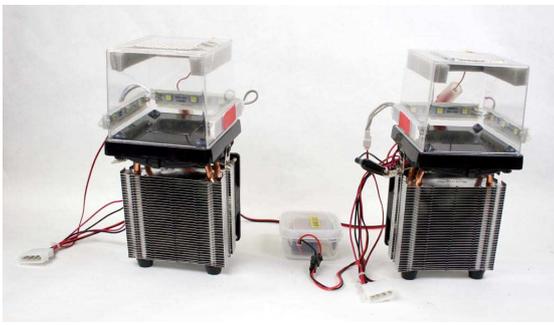
Web Site (Japanese)



Comparison of EX-type, SD-type and the previous version.



Main unit of standard type (SD) Peltier-cooling cloud chamber.



One couple of ATX power supply and HV unit can operate two main unit. That enable us to compare alpha-rays and beta-rays.

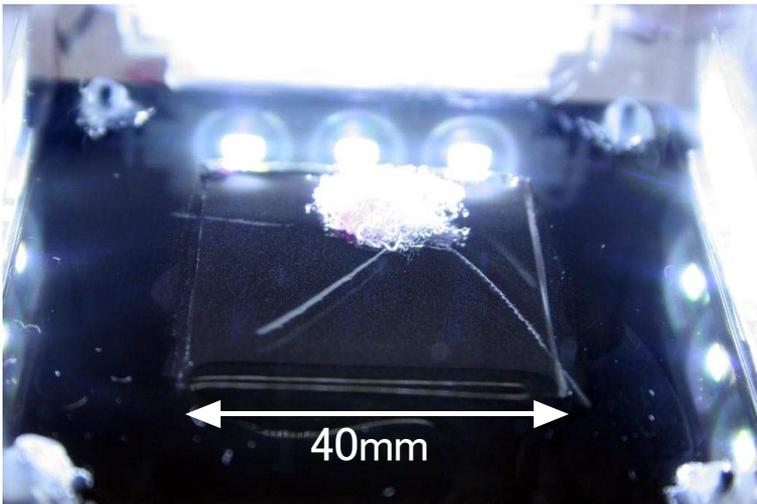
High performance enlarged Peltier device with side lighting tape-LED in EX-type system.



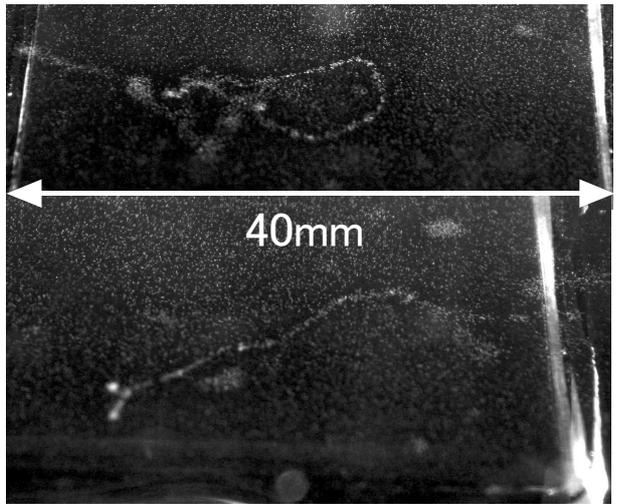
A Cockcroft high voltage unit supply up to 2kV tension. It sweep motley ions in air that achieve high efficiency and all weather operation.

With the new EX-type, observation area is enlarged to 60mm × 60mm. Large cylindrical chamber enable multi-people observation, and very high efficiency enable observation of natural-radiation .

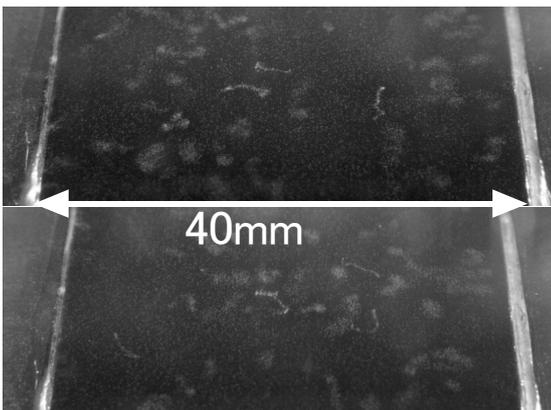
This equipment consists of the main unit into which Peltier devices, an air cooling heat-sink, and LED lightings were packed compactly, and the high-voltage unit. High-intensity LED lighting enable us to observe tracks in the bright room. Although the power supply of 12V/5V is required, it can obtain using the ATX power supply taken out from old PC. After the power ON, only 20sec is required to observe tracks. Once start observation, no support to add alcohol is required during half day.



Alpha-ray tracks



Beta-ray tracks



X-rays from Crookes Tube (Photo electrons)

Observation of radiations using conventional cloud chambers were limited to only alpha-ray tracks and had many restrictions. While this Peltier-cooling-type high performance cloud chamber enable us to observe **very clear radiation tracks** in a few tens of seconds after a power supply even under a bad weather condition, of cause **without dry ices**. The technical features such as clearing assorted ions in air using HV-unit, high-intensity LED illuminations and the fabric of the chamber enable us to **observe beta-ray tracks**. Not only simple observation of alpha-ray tracks, but also compare with beta-rays track or a **delta-ray tracks arisen from gamma rays** enables us to perform far deep radiological education related to interactions of radiations and materials.