Cosmic Ray Nuclei detection in the balloon borne nuclear emulsion gamma ray telescope flight in Australia (GRAINE 2015)

Atsushi Iyono[1]*, Shigeki Aoki[2], Saya Yamamoto[1] et al.,
for the GRAINE collaboration[3,4,5,6]
[1]Okayama University Of Science,[2]Kobe University,
[3] Aichi University of Education,[4] ISAS/JAXA,
[5]Utsunomiya University, [6]Nagoya University

Nuclear emulsion plates for studying elementary particle physics as well as cosmic ray physics are very powerful tracking tools with submicron spatial resolutions of charged particle trajectories. Even if gamma rays have to be detected, electron-positron pair tracks can provide precisely to reconstruct their direction and energy with high accuracies. Recent development of emulsion analysis technology can handle almost all tracks recorded in emulsion plates digitally such as Hyper Track Selector at NAGOYA university of OPERA group.

On the other hand, the potential of time resolutions have been equipped by emulsion multilayer shifter technology in the GRAINE experiments, of which aims are to detect cosmic gamma rays such as stellar object of Vela pulsar by precise emulsion tracking analysis and to study cosmic ray particle interactions and chemical compositions.

In this presentation, we focus on the subject of cosmic ray nuclei detection in the GRAINE balloon flight experiments launched at Alice Spring, Australia in 2015 May.

---

*E-mail: iyono@das.ous.ac.jp

1