Contribution ID: **120** Type: **Poster**

The gas migration in cryogenic tubes

Tuesday 19 June 2018 18:00 (20 minutes)

In superconductive linear accelerator, the performance and stability can be adversely impacted by gas adsorbed on cryogenic surfaces. The cryogenic devices usually work at liquid 4.2 K or 1.9 K, at such low temperature, the phenomena of gas adsorption on cryogenic surface will affect the gas migrating process along vacuum tubes obviously, so the gas migration process will be much different from the process at room temperature. In order to study the character of gas migration in cryogenic tubes, adsorbed probability and sojourn time at 4.2 K are measured by experimental study. whereafter, a model is established associated with experimental study results to depict gas migration process in cryogenic tubes. The model established in this article can be applied not only for hydrogen or helium migration in cryogenic tubes but also for other gas migration in tubes with strong adsorbed probability. By the experimental study, model established and analyzed, it is indicated that at cryogenic temperature (4.2 K), adsorbed probability for hydrogen is very close to 1, which is several orders higher than the adsorbed probability at room temperature. The distribution of pressure in cryogenic tubes is also different from room temperature tubes.

Author: Dr HU, Chuanfei (Institute of Modern Physics, Chinese Academy of Sciences)

Co-authors: Dr BAI, feng (Institute of Modern Physics, Chinese Academy of Sciences); Prof. ZHANG, Junhui (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: Dr HU, Chuanfei (Institute of Modern Physics, Chinese Academy of Sciences)

Session Classification: Poster Session Tuesday

Track Classification: Vacuum in Accelerators