

## 21T 초전도 자석을 위한 수평형 냉각조의 예비 설계

이병섭<sup>†</sup> · 김동락\* · 최연석\* · 양형석\*(한국기초과학지원연구원)

### Preliminary Design of Horizontal Cryostat for 21T Superconducting Magnet

Byoung-Seob Lee, Dong Lak Kim, Yeon Suk Choi, HyungSuk Yang

**Key Words:** Horizontal Cryostat(수평형 냉각조), Superconducting Magnet(초전도 자석), FT-ICR MS(질량 분석기)

**Abstract :** The Superconducting Magnet for FT-ICR MS have horizontal type and need horizontal cryostat for superconductivity, therefore we progressed preliminary design of horizontal cryostat. According to advance of investigation related on design of horizontal cryostat, we found many troublesome problem. Above all, we must design cryogen tank and support system in narrow space and relieve heat load within acceptable budget. Also, the detailed information related on preliminary design was obtained and was estimated by using ANSYS.

## 적외선 우주망원경 냉각시스템 복사열 측정

김 동락 · 양 형석<sup>†</sup> · 이 병섭 · 최 연석 (한국기초과학지원연구원)

### Radiation Heat Measurement of PSICS

D.L. Kim, H.S. Yang, B.S. Lee and Y.S. Choi

**Key Words:** Radiation heat (복사열), Space cryogenics (우주저온공학)

**Abstract :** We presented the thermal design results of a protomodel of space infrared cryogenic system (PSICS) at 2005 KSME spring conference. From the design results, we knew that the radiation heat load accounts for major part of the heat loads. In order to verify the design results, we measured the radiation heat load by using boil-off calorimetry method with liquid nitrogen. The experimental result is in good agreement with the calculation one. The experimental set-up and measurement result of PSICS will be presented. This research is supported by the Korea Research Council of Fundamental Science & Technology.