Contribution ID: **268** Contribution code: **WED-PO2-716-05** Type: **Poster**

Mechanical Design of the Mirror Structure for the full-length Nb3Sn Sextupole Coil of 45 GHz ECR Ion Source

Wednesday, 17 November 2021 10:30 (20 minutes)

The new Nb3Sn superconducting magnet system for a 45 GHz electron cyclotron resonance (ECR) ion source is under developing in the Institute of Modern Physics (IMP). The sextupole coil, which is wound by a single Nb3Sn wire, is indeed a great technical challenge. Because of the complicated technology process and the stress sensitivity of the full-length Nb3Sn sextupole coil, a sextupole magnetic mirror structure based on the Bladder and Key technology during the magnet assembly was used for the coil's performance evaluation. This paper presents the mechanical design of the Mirror structure along with fabrication details, describes the room temperature assembly, and reports the cryogenic test results.

Primary authors: ZHU, Li (Institute of Modern Physics, Chinese Academy of Sciences); WU, Wei (Institute of Modern Physics, Chinese Academy of Sciences); QIN, Xiangqi (Institute of Modern Physics, Chinese Academy of Sciences); WANG, Lishi (Institute of Modern Physics, Chinese Academy of Sciences); ZHANG, Yalong (LANZHOU KEJIN TAIJI CORPORATION,LTD); WANG, Pengyuan (Lanzhou University of Technology); OU, Xianjin (Institute of Modern Physics, Chinese Academy of Sciences); MEI, Enming (Institute of Modern Physics, Chinese Academy of Sciences); CHEN, Yuquan (Institute of Modern Physics, Chinese Academy of Sciences); XIN, Canjie (Institute of Modern Physics, Chinese Academy of Sciences); LI, Chao (Xi'An Superconducting Magnet Technology Co.,LTD); SUN, Lingting (Institute of Modern Physics, Chinese Academy of Sciences)

Presenters: ZHU, Li (Institute of Modern Physics, Chinese Academy of Sciences); WU, Wei (Institute of Modern Physics, Chinese Academy of Sciences)

Session Classification: WED-PO2-716 Mechanical Behavior of Coil II