



Contribution ID: 39

Type: **Poster (by default)**

Development of Negative Ion Source with Double Drivers for the CRAFT Neutral Beam Injector

The Comprehensive Research Facility for Fusion Technology (CRAFT) is a large scientific device that is preferentially deployed for the construction of major national science and technology infrastructures. A radio frequency (RF) negative ion based neutral beam injection (NNBI) system with beam energy of 400 keV, beam power of 2 MW and beam duration of 100 s was designed to deliver energetic neutral beam for fusion research. To understand the physics and pre-study the engineering problems for RF negative ion source, several negative sources with different sizes and structures were developed and tested, including the prototype negative ion source with single driver, double drivers and four drivers. So far, the prototype negative ion source has been tested on a small test facility. The negative ion beam with beam energy of 54kV, negative ion current of 3.5A and beam pulse of 105 s was achieved. The extracted negative ion current density is around 160 A/m². Last year, the negative ion source with double drivers was designed and developed (a new test facility was also developed for the ion source conditioning too). Now, the negative ion source with double driver was finished assemble and under testing. The details of design and experimental results of ion source will be reported in this paper.

Funding Agency

Email Address

xieyh@ipp.ac.cn

I have read the Code of Conduct to attend ICIS2023.

Yes

Presenter if not the submitter of this abstract

Primary authors: XIE, Yahong (Institute of Plasma Physics, Chinese Academy of Sciences); WEI, Jianglong (Institute of Plasma Physics, Chinese Academy of Sciences); Mr GU, Yuming (Institute of Plasma Physics, Chinese Academy of Sciences); Ms YANG, Yuwen (Institute of Plasma Physics, Chinese Academy of Sciences); Mr XIE, Junwei (Institute of Plasma Physics, Chinese Academy of Sciences); Ms WANG, Na (Institute of Plasma Physics, Chinese Academy of Sciences); Mr PENG, Xufeng (Institute of Plasma Physics, Chinese Academy of Sciences); Ms ZHAO, Yuanzhe (Institute of Plasma Physics, Chinese Academy of Sciences); Dr LIANG, Lizhen (Institute of Plasma Physics, Chinese Academy of Sciences); Dr XU, Yongjian (Institute of Plasma Physics, Chinese Academy of Sciences); Dr JIANG,

Caichao (Institute of Plasma Physics, Chinese Academy of Sciences); Dr XIE, yuanlai (Institute of Plasma Physics, Chinese Academy of Sciences); Prof. HU, Chundong (Institute of Plasma Physics, Chinese Academy of Sciences)

Presenter: XIE, Yahong (Institute of Plasma Physics, Chinese Academy of Sciences)

Track Classification: Negative Ion Sources and Sources for Fusion Facilities