NIBS 2020

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September 10th, 2020

FUNDAMENTALS AND DIAGNOSTICS HIGLIGHTS

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Source fundamentals and diagnostics Wednesday, September 2nd.

- Validation of the Distribution of Stripping Loss Neutrals in the Accelerator of the Negative Ion Source, Katsunori IKEDA
- Different characteristics of plasma meniscus formation between positive and negative beam extraction, Kenichi NAGAOKA
- Development of the directional Langmuir probe for the charged particle flow measurement, Shingo MASAKI
- Profile of the LHD negative ion beam source at the plasma meniscus from numerical beam calculation based on experimental observation Jelle SLIEF
- Probe for in situ measurement of work function and cesium dynamics, Pranjal SINGH
- Correction algorithm for cavity ring down based anion density measurement in a negative ion source having continuously fed cesium vapour, Debrup MUKHOPADHYAY

Source fundamentals and diagnostics Thursday, September 3rd.

- Are resonance phenomena creating instabilities in the magnetic filter region in a low-temperature plasma? Miralbrup SHAH
- BTR code for NBI Design and Optimization DLOUGACH Eugenia
- Investigation of the negative ionization of hydrogen particles on metal surfaces with low work function, Ivan GAINULLIN
- Numerical modeling of the electrons confinement in the multicusp magnetic trap, Viktor KLENOV
- Impact of operational parameters on single beamlet deflection in a negative ion source for NBI applications, Andrew HURLBATT
- Experiments on Photo-Assisted O^- and Al^- Production with a Cesium Sputter Ion Source, Olli TARVAINEN

Source fundamentals and diagnostics Friday September 4th.

- Interface Boundary Conditions for Global Models of Multi-Chamber Negative Hydrogen Ion Sources, Sergey AVERKIN
- Quantifying the Cesium and H^- Densities Inside the LANSCE H^- Ion Source with Laser Absorption Techniques, David KLEINJAN
- Modeling filaments in H^- ion source from the first principles Nikolai YAMPOLSKY
- Transport of a negative ion beam through a hydrogen plasma Enrique HENESTROZA.

Source fundamentals and diagnostics Tuesday September 8th.

- Extraction of Negative Hydrogen Ions through a Plasma Electrode Covered by a Ta or Ti Foil, Kenta MAESHIRO
- Plasma Electrode Shape Suitable for Negative Hydrogen Ion Production, Keita BITO
- Velocity distribution functions of hydrogen atoms in ion source discharges, Tatsuhiro TOKAI,
- The Cs-free Negative Hydrogen Ion Source Project at KAERI: A New Concept Multi-Pulsed Ion Source, Sung-Ryul HUH
- Study of the multi-driver decoupling model of RF negative ion sources, Na WANG
- Some technical verification on infra-red temperature measurement, Chao SHI

Source fundamentals and diagnostics Wednesday, September 9th.

- High-speed Emittance Measurements for Beams Extracted from J-PARC RF Ion Source, Takanori SHIBATA
- Primary electron analysis to improve the negative ion uniformity toward ITER-class long pulse and high power negative ion sources, Yuji SHIMABUKURO
- Issues in the measured values of Langmuir and photo-detachment probes measuring Cs-seeded plasmas, Katsuyoshi TSUMORI
- Prediction of negative hydrogen ion density in permanent magnet-based helicon ion source (HELEN) using deep learning techniques, Vipin SHUKLA.

Source fundamentals and diagnostics Thursday, September 10th.

- Study of response of negative ion beam to bias voltage in phase space, Masashi KISAKI
- Analysis of plasma characteristics of high-power radio frequency negative ion source based on Langmuir probe, Yongjian XU.
- Study of population dynamics of excited atomic hydrogen in negative hydrogen ion sources base on collisional radiative model, Zengshan LI
- BTR code Recent Modifications for Multi-Run Operation, Eugenia DLOUGACH

Summary

- **State of the art negative ion sources improve their performance based on better understanding on fundamental processes confirmed by plasma and beam diagnostics.**
- **Tools like beam trajectory simulation codes necessary for theoretical analyses of the observed plasma/beam behavior are continuously upgraded.**

- **Steady advancement of science on “negative ion, beams and sources” has been confirmed at this conference.**