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AISHa: an ECRIS for nuclear-physics, new clinical protocols and material experiments

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The Advanced Ion Source for Hadrontherapy (AISHa) is an ECR ion source operating at 18 GHz, developed with the aim to produce multiply charged ion beams with low ripple, high stability and reproducibility, low maintenance. Due to its unique peculiarity, it is a suitable choice for medical applications, but also to nuclear-physics and material experiments.
Two AISHa sources have been realized up to now: the first at INFN-LNS, as a prototype, and the second at the Centro Nazionale di Adroterapia Oncologica (CNAO).
The first one, fully commissioned at INFN-LNS, will be used as testbench for the preparation of new beams for Nuclear Physics; R&D activities are also planned within the IONS experiment in order to increase plasma confinement and to refine techniques of non-invasive plasma diagnostics aimed to correlate plasma parameters and beam parameters.
The second one recently produced the first beam and it will permit to increase the opportunities provided by the CNAO hospital, with the long-term goal of introducing new ionic species into clinical practice such as helium, oxygen and later also iron and lithium, either useful for bio-spatial research and for experimental and industrial research. In this presentation, the key peculiarity and the experimental results of the Aisha ion source will be presented.

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Footnotes

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