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New Beam lines for NUMEN experiments at INFN-LNS

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The NUMEN experiment at LNS demands an upgrading of the Superconducting Cyclotron (CS) to deliver beam ion with mass <40 and with power up to 10 kW.
To transport the new high power beams it is mandatory to build a new extraction beam line for the CS and to upgrade the existing beam transport lines to reduce the beam losses below 100 W in the accelerator room and in the beam transport areas. Moreover, we plan to build a new FRAgment Ion Separator (FRAISE) to produce radioactive ion beams, but also to perform energy selection of the beam extracted from the cyclotron, to be delivered to the MAGNEX spectrometer with an energy spread below ±0.3÷0.2%.
The use of a 10 kW beam needs also the installation of a well shielded beam dump in the MAGNEX room. Also the last part of the beam transport line inside the MAGNEX room needs to be changed to allow the installation of the new beam dump.
The layout and description of all these changes are presented.

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