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WG4 J-PARC MUSE H-line optimization for the g-2 and MuHFS experiments

Anomalous deviation of the amu factor observed by the muon g-2 experiment is significant, and should be confirmed as soon as possible.
This factor is experimentally determined by frequency difference observed by the g-2 and muon magnetic moment observed by the muonium hyperfine splitting (MuHFS).
Both two experiments are planned to be performed at the H-line of
the J-PARC/MUSE which is under construction.

We optimized the beamline for each experiment with G4beamline.
For both experiments, statistics is the most important, thus beamline transmission should be maximized.
Especially for the g-2, the purpose of the present effort is to compromise between small beam size and small leakage field.
For the MuHFS, it is crucial to minimize leakage field at
around final focus position, and to get all stopped muons
within good field region of MuHFS magnetic field.
Detail design of the final focusing for several magnet system cases
will be presented.

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