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Beam dynamics and Linac design for the 200 MeV energy upgrade at KOMAC

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Since 2013, the Korea Multi-purpose Accelerator Complex (KOMAC) has been operating a 100 MeV linear proton accelerator. Designed from its inception with the long-term vision of upgrading to a high-power spallation neutron source, KOMAC's proton accelerator aims to achieve a final energy of 1 GeV. As an intermediate milestone toward this goal, a 200 MeV energy upgrade is currently being planned.

To support this upgrade to 200 MeV, comprehensive linac designs and beam dynamics simulations have been carried out, adopting a Separate-type Drift Tube Linac (SDTL). This presentation discusses the beam dynamics design of the linac and the user-side beamline for the proposed upgrade. Additionally, error analysis simulations were performed based on the initial design calculations. These simulations have validated the robustness and stability of the linac design, confirming its feasibility for stable operation at 200 MeV linac.

Footnotes

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