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Updated baseline design for HALHF: the hybrid, asymmetric, linear Higgs factory

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Plasma accelerators promise significantly more compact, affordable and greener next-generation facilities, including linear colliders. While high-efficiency and -quality plasma acceleration of electron beams has been achieved, positron beams are much more challenging. The HALHF* (hybrid, asymmetric, linear Higgs factory) collider concept sidesteps the positron problem by accelerating them using RF cavities, while plasma acceleration to much higher energy is utilised for electrons. We report on an updated HALHF baseline design, which is more realistic, more upgradable to higher energies and includes additional capabilities such as positron polarization. Preliminary start-to-end simulations of the new baseline are also described.

Footnotes

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