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Towards a monochromatization scheme for direct Higgs production at FCC-ee

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Direct Higgs production in $e+e-$ collisions at the FCC is of interest if the centre-of-mass energy spread can be reduced by at least an order of magnitude. A monochromatization scheme, to accomplish this, can be realized with horizontal dispersion of opposite sign for the two colliding beams at the interaction point (IP). We recall historical approaches to monochromatization, then derive a set of IP parameters which would provide the required performance in FCC $e+e-$ collisions at 62.5 GeV beam energy, compare these with the baseline optics parameters at neighbouring energies (45.6 and 80 GeV), comment on the effect of beamstrahlung, and indicate the modifications of the FCC-ee final-focus optics needed to obtain the required parameters.

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