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ILC Crab Cavity Development

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For the 14 mrad crossing angle proposed, crab cavity systems are fundamentally anticipated for the viable operation of the International Linear Collider (ILC), in order to maximise its luminosity performance. Since 2021, a specialist development team have been defining optimum crab cavity technologies which can fulfil the operational requirements for ILC, both for its baseline centre-of-mass energy of 250 GeV, but also extending those requirements out to higher beam collision intensities. Five design teams have established crab cavity technology solutions, which have the capability to also operate up to 1 TeV centre-of-mass. This presentation showcases the key performance capabilities of these designs and their associated benefits for both manufacture and integration into the ILC Interaction Region. The recommended outcome of the recently conducted crab cavity technology down-selection, will also be highlighted.

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