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Cavity Technology that will increase the power and reduce the cost of ILC NATHANIEL POGUE, PETER MCINTYRE, AKHDIYOR SATTAROV, Texas A&M University — Current SRF cavity technology has made the construction of the ILC prohibitively expense. Through several different methods it is possible to increase the power and reduce the cost. This upgrade is the result of work performed in various labs around the country: Jeff Lab, Argonne Lab, and Texas A&M University. Using the technique of superconducting heterostructures it is possible to increase both the gradient and Q of SRF cavities. Such layers can be effectively created using ALD technology. These films can be tested using a specially designed cavity to go four times the BCS limit of Niobium. In combination with the layer newly invented heating techniques can increase cavity performance by reducing trapped vortices. The Polyhedral cavity can eliminate the costly HOM couplers and piezos to compensate for Lorentz detuning. All of these methods in combination could drastically reduce the cost and increase performance of a large linear collider.

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