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New Ideas on ILC Detector Technologies & Sustainability Studies for Linear Colliders

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Among all "Higgs Factories", the international Linear Collider project (ILC) with a first stage at 250 GeV, followed by an upgrade to higher energy, is by far the most advanced in terms of technology, maturity, cost, and preparations in international cooperation. A global design and R&D effort for baseline detector concepts, ILC and SiD, allowed drawing up the main specifications for the detector performance. Intentionally, ILD and SiD concept groups did not make specific choices and keep various options for technologies open to realize the individual sub-detectors. This has an advantage that the technologies can be further matured until specific choices will be made once the project is approved. Several promising new ideas for improved sensors and detector systems that can be integrated into ILD and SiD will be discussed in this talk. Recent developments are ongoing to adapt elements of ILD concept that might need to be changed, should ILD operates at other circular Higgs Factory colliders.

This talk will also highlight the challenges and necessary technological advances for detector optimization, further R&D work on critical accelerator technologies within the ILC International Technology Network (ITN), and address sustainability aspects for future Linear Collider facilities.

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