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## **Low oxygen, high purity, proven crystal growth method for 450mm + silicon optics**

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The NeoGrowth method, originally developed for high-efficiency photovoltaics, is a crucible-free crystal growth technique with promising potential for producing cryogenic mirror substrates for next-generation gravitational wave detectors such as the Einstein Telescope (ET). Crystal diameters of 450 mm—within the required range for ET—have already been demonstrated. The method enables oxygen levels and metallic impurity concentrations comparable to or lower than those achieved with magnetic Czochralski (MCz) silicon, along with low defect densities. This talk presents the current development status of the NeoGrowth method and assesses its potential to meet the stringent crystal purity and structural requirements necessary for achieving minimal optical absorption and mechanical losses.

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