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IceCube Upgrade and the performance of the optical module D-Egg

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The IceCube Upgrade involves development of several new optical modules:dual-PMT (D-Eggs), multi-PMT (mDOMs), and upgraded traditional modules (pDOMs). In particular, the D-Eggs offer a high-efficiency and cost-effective solution compared to original IceCube modules. Results extracted from the IceCube Upgrade will compliment low energy analyses, as well as be a key component of the upcoming IceCube Gen2, which will include extensive expansion of sensitivity in the TeV+ energy range. Inclusion of new calibration devices and increased module performance
play an important role in this increase. Currently over 280 D-Eggs have been produced and are undergoing detailed testing before permanent deployment into the Antarctic ice. This document highlights results of the mass-production line D-Egg modules for the IceCube Upgrade.

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