

## **Sample Loading and Accelerated Cooling of Cryogen-free Dilution Refrigerators**

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We present our latest results from bottom and top loading cryogen-free dilution refrigerators which enables samples to be cooled from room temperature to base in 6 to 8 hours. The loading and unloading processes take only a few minutes to perform and the cooling procedure is fully automated. Sample temperatures of less than 10 mK have been achieved with up to 8 semi-rigid coaxes and 25 DC wires connected to the sample holder. We also present results from cool down tests on a beam line dilution refrigerator with a 35 kg mass installed on the mixing chamber. A heat pipe was developed to accelerate the cooling of large experimental payloads and the mass was cooled from room temperature to base in less than 28 hours.