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C2Or2C-01: System analysis of a closed cycle dilution refrigerator for space applications

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We present a computational model for a closed cycle dilution refrigerator (CCDR) for space applications. The motivation of the computational model was the design a
CCDR demonstration model for the X-IFU instrument of the Athena space observatory.
We also have applied the computational model to other astrophysical instruments such as PIXIE and LiteBIRD to predict the available cooling power for instruments at different temperatures (0.05 K, 0.1 K, and 0.3 K) as well as the required cooling power from a cooling stage at 1.75 K.
We will give examples of how the computational model helps to optimize the CCDR for specific instruments.

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