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Unveiling Our Dynamic Infrared Sky

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Many astronomical events shine the brightest in the infrared due to atomic opacity, self enshrouding, dust extinction, or low temperature. When we saw the first electromagnetic counterpart to gravitational waves from a binary neutron star merger, it was the rapid reddening due to bound-bound opacity and infrared spectral features that confirmed the synthesis of heavy elements by the r-process. Unveiling infrared counterparts to neutron star black hole mergers requires sensitive wide-field infrared surveyors. The best place to build a sensitive infrared surveyor is the Antarctic given the extremely low sky background in the K-dark bandpass. Here, we present a fully cryogenic Antarctic concept for such a dream infrared surveyor that leverages the lower background, advances in detector technology and progress from pathfinder experiments. A companion talk by Roger Smith will describe the enabling technologies in more detail.

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