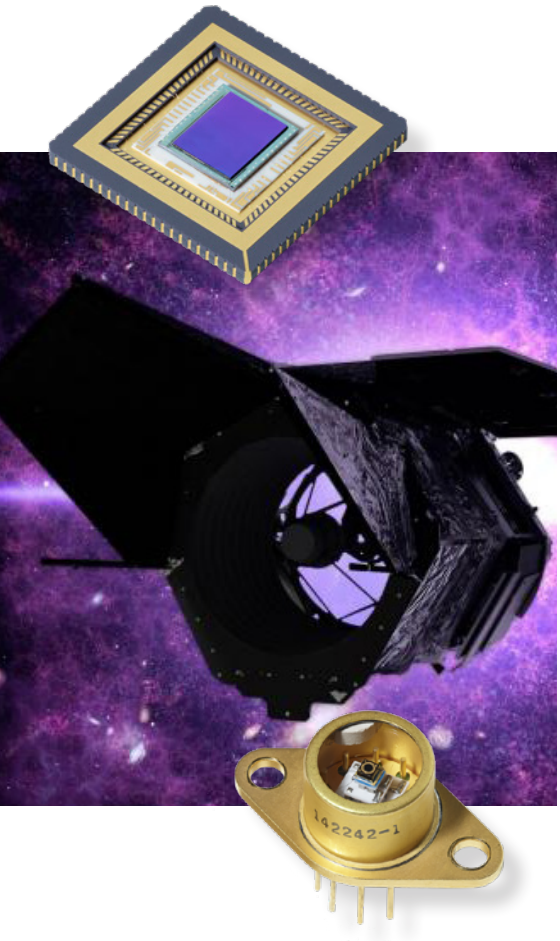
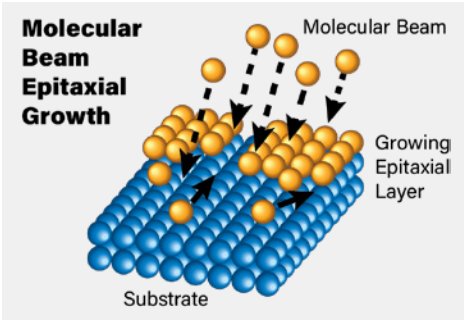
Teledyne Judson Brings Molecular Beam Epitaxy (MBE) out of Space Programs and into Commercial Production

Teledyne Judson brings astronomical capabilities down to Earth by now offering our Mercury Cadmium Telluride (MCT, HgCdTe) photovoltaic and photoconductive sensors made from world-leading Teledyne-grown molecular beam epitaxy (MBE) material, offering unparalleled sensitivity, uniformity, and speed.





Teledyne Judson is proud to continue to push the envelope of infrared sensing by now offering our Mercury Cadmium Telluride photovoltaic and photoconductive sensors made from world-leading Teledyne-grown molecular beam epitaxy (MBE) material. Epitaxy using molecular beams allows Teledyne to lay down the material layer-by-layer in a regulated process under pure and controlled conditions, resulting in a superior final product.

Molecular Beam Epitaxy (MBE) produces the highest quality MCT through two core processes – the ability to provide very low defect densities allowing large substrates to be processed and by enabling very accurate deposition of the materials including grading of the concentration during growth. This allows our scientists and engineers to produce your devices with highly tailored "bandgap engineering," giving the best combination of performance, quality, and price. This process really shines at high volumes, providing all these capabilities with a more aggressive cost scaling than other technologies.

Other advantages of MBE-grown MCT include better carrier concentration and conductivity, both are critical for getting the highest sensitivity sensors. These sensors have improved D* and responsivity, and with less crosstalk. Also, by not having a thick carrier wafer one achieves a smoother spectral response for the sensor which reduces the need for calibration for spectrally sensitive techniques. And thirdly, the material is grown to the desired thickness initially rather than requiring dicing and polishing to get the wafers out of a bulk crystal – all that processing induces sub-surface damage which can harm the performance of the device.

Your sensor can now take advantage of the same material used on the James Webb space telescope and the Nancy Grace Roman space telescope. Teledyne Judson's MCT photodiodes, arrays, and focal planes for IR sensing can take your measurements to the next frontier.

Contact us today to learn how Teledyne's MBE MCT can address your IR challenges!

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