

## Advanced Mirror & Modelling Technology Development

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The 2020 Decadal technology survey is starting in 2018. Technology on the shelf at that time will help guide selection to future low risk and low cost missions. The Advanced Mirror Technology Development (AMTD) team has identified development priorities based on science goals and engineering requirements for Ultraviolet Optical near-Infrared (UVOIR) missions in order to contribute to the selection process. One key development identified was lightweight mirror fabrication and testing. A monolithic, stacked, deep core mirror was fused and replicated twice to achieve the desired radius of curvature. It was subsequently successfully polished and tested. A recently awarded second phase to the AMTD project will develop larger mirrors to demonstrate the lateral scaling of the deep core mirror technology.

Another key development was rapid modeling for the mirror. One model focused on generating optical and structural model results in minutes instead of months. Many variables could be accounted for regarding the core, face plate and back structure details. A portion of a spacecraft model was also developed. The spacecraft model incorporated direct integration to transform optical path difference to Point Spread Function (PSF) and between PSF to modulation transfer function. The second phase to the project will take the results of the rapid mirror modeler and integrate them into the rapid spacecraft modeler.