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## **Thermal property measurements of critical materials for SPICA payload module**

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Space Infrared Telescope for Cosmology and Astrophysics (SPICA) is a pre-project of JAXA in collaboration with ESA to be launched around middle 2020s. 3m-class infrared telescope must be below 6K based on the scientific requirement, and effective radiant cooling into deep space at L2 point in combination with mechanical cooler system are used in order to cool scientific instruments as well as the telescope. In SPICA payload module thermal design, it's important to research and measure thermophysical properties of materials in order to achieve the cooling chain with high reliability. Hence, all critical materials in particular FRPs have been picked up and thermal properties (thermal conductivity, specific heat, and thermal expansion) have been measured for these materials. Then, these measured values have been compared with literature values and have been included in a thermal model analysis. This paper introduces details of these thermal properties measurements, comparison with literature values, and thermal model analysis of SPICA payload module.

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