

Title: "The Scientific Value of Returned Samples"

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Abstract: Most of the materials in the universe are so distant or inaccessible that the only way we can study them is remotely using various types of telescopes. However, in some cases we can study these materials directly because the samples become physically available to us. Some samples come to us of their own accord in the form of meteorites and cosmic dust. In other cases we have to work hard to carry out sample return missions like Apollo, Stardust, OSIRIS-REx, Hayabusa, and Hayabusa2 to go get the samples ourselves. Once samples are physically available in terrestrial laboratories, we can learn details about their compositions and histories that could never be established by remote observations. As part of this talk, the acquisition of samples in the form of meteorites from Antarctica, cosmic dust from the stratosphere, and comet and asteroid samples from spacecraft missions will be discussed and a few example of the scientific value of such samples will be presented.