

Data Sharing and Utilization in Astronomy

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The rapid development of semiconductor technology has led to large sensitive detectors that enabled astronomers to easily survey large sky areas. Such large-scale observations and surveys cover a wide range of scientific themes in astronomy. Astronomers need to be well-prepared for such a new era of astronomical research utilizing large amounts of data. Since the data production rate will be 100 to 1000 times larger than the past, advanced data analyses combined with statistics and data mining will be essential to derive general “rules” and/or “knowledge” on various phenomena in the Universe, as the data volumes will make human inspection and analysis of the data impossible. The most important and exciting astronomical discoveries of the coming decade will rely on research and development in data science disciplines that enable rapid information extraction, knowledge discovery, and others, combined with sophisticated data management, access, visualization and other technical advancement.

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