

## **Big Data and Complex Modeling Challenges in Astronomy and Solar Physics**

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In recent years, technological advances have dramatically increased the quality and quantity of data available to astronomers. Newly launched or soon-to-be launched space-based telescopes are tailored to data-collection challenges associated with specific scientific goals. These instruments provide massive new surveys resulting in new catalogs containing terabytes of data, high resolution spectrography and imaging across the electromagnetic spectrum, and incredibly detailed movies of dynamic and explosive processes in the solar atmosphere. The spectrum of new instruments is helping scientists make impressive strides in our understanding of the physical universe, but at the same time generating massive data-analytic and data-mining challenges for scientists who study the resulting data. This talk will give an overview of a number of statistical challenges that arises from big data and complex models in astronomy and solar physics.