

## **Specjalne Seminarium Astrofizyczne**

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### **Dark Energy Science with Combined Probes**

The discovery of the Universe's accelerated expansion and the observational results from the latest  $\sim 20$  years have established the  $\Lambda$ CDM as the standard model of cosmology. Consequently, we have added two new exotic components to the matter-energy content of the Universe, dark matter and dark energy, neither of which have been observed in laboratories. In the  $\Lambda$ CDM model, dark energy is described as a cosmological constant  $\Lambda$ , but there are still open issues regarding its value and nature. Therefore, the understanding of the physical nature of dark energy is one of the main problems in cosmology. A robust approach to shed light on this problem is to measure different and complementary probes of dark energy and cosmic acceleration in large galaxy surveys. In this talk, I will present some of recent results from the Dark Energy Survey. In particular, the analysis of galaxy clusters abundance and measurements from gravitational wave standard sirens.

Serdecznie zapraszam,

Agnieszka Majczyna