



Measuring Dark Matter and Dark Energy with Gravitational Lensing.

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DESY Auditorium

The standard model of cosmology, which emerged over the last 1-2 decades, yields the disturbing picture that ~95% of the energy density of the Universe is made up of dark matter and dark energy. These constituents have not been observed in the laboratory but their existence hints at new physics, i.e. beyond the standard model of particle physics. Gravitational lensing (GL) has been identified as one of the most promising techniques to study this dark sector of the Universe. Not only is GL capable of making dark matter 'visible' in many different kinds of celestial objects, but it also has the potential of measuring the effects to dark energy.



In this talk I will review the standard model of cosmology and show how GL measurements can reveal the distribution of matter in our galaxy, in other galaxies, and in galaxy clusters. Furthermore, I will describe how future large imaging surveys will constrain the nature of dark energy and test General Relativity by using the weak gravitational lensing effect of the large-scale-structure of the Universe.

- **Coffee, tea and cookies will be served at 16.30h**
- **After the seminar there is a chance for private discussions with the speaker over wine and pretzels**

