## SEMINAR FIZIČKOG ODSJEKA

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# Experimental study of the magneto-optical properties of the vacuum element


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According to the Quantum Electrodynamics (QED), zero point energy fluctuations of the vacuum are the origin of its magneto – optical properties which are usually associated with transparent materials. Experimentally, these properties are studied by observing changes in the polarization state of a linearly polarized laser beam propagating through a piece of material perturbed by an external magnetic field. The PVLAS collaboration is operating a high sensitivity optical ellipsometer capable of detecting changes in the light polarization state down to 10-8 rad in an hour of data taking. An unexpected signal of unknown origin is present in vacuum. A description of the experimental apparatus, as well as brief history of the measurements performed will be presented.



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