SIMULATION OF THE ATMOSPHERIC FLUORESCENCE FROM EAS FOR CALCULATION THE PHOTOELECTRONS AT THE PMT PHOTOCATHODE OF FD BASED ON RECENT HIGH RESOLUTION SPECTRAL MEASUREMENTS OF AIR FLUORESCENCE.

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The Linsley standard atmospheric model is used to simulate the atmospheric EAS due to the passage of an UHECR. Adopting the AIRES shower simulation program we derived the longitudinal distribution of electrons and positrons produced. These particles exciting the nitrogen molecules in the atmosphere play a dominant role in the amount of fluorescence light coming from nitrogen de-excitation within the wavelength range of 300 – 400 nm. The fluorescence triggers efficiently the array of PMT of the Fluorescence Detector of the Auger Observatory, provided that the signal to noise ratio is typically greater than 5 in each pixel taking part in the trigger decision, counting in this way the photoelectrons.
By using spectral data of high-resolution taken recently by our group with a one-meter grating monochromator, we can estimate the contributions to the EAS fluorescence from electronic emissions. In addition, from vibronic-electronic lines which are near the main emission lines at 337, 357 and 391 nm we can estimate the spectral yield arriving at a telescope of the FD of AUGER.
Finally, the simulation takes into account experimental data based on the response of the system "optical filter - mirror-PMT" to the presence of either natural or artificially created night sky radiation noise. Results of simulation for typical events expected to be registered by the AUGER FD prototypes are presented.