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Title: RARE-GAS OPTICS-FREE STABLE EXTREME-ULTRAVIOLET
PHOTON SPECTROMETER FOR SOLAR-SYSTEM STUDIES

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Abstract: We have developed a prototype spectrometer for space applications that require long-term stable EUV photon flux measurements. In this recently developed spectrometer, the energy spectrum of the incoming photons is transformed directly into an electron energy spectrum by taking advantage of the photoelectric effect in one of several rare gases at low pressures. Using an electron energy spectrometer operating at a few electron volts, and followed by an electron multiplying detector, pulses due to individual electrons are counted. The overall efficiency of this process is essentially independent of gain drifts in the signal path, and the secular degradation of optical components that is often a problem in other techniques is avoided.

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