Abstract： The method of the photo-stimulated discharge current (PSDC) for measuring trap energy levels in dielectrics has received considerable attention in the recent past. It is the optical equivalent of TSDC but much more powerful than TSDC. In this paper, the films of LLDPE are charged either with DC high voltage or in a point-to-plane corona discharge. The experimental results show the relationship between the photo-stimulated current and the wavelength while the films are irradiated under the UV-light which scan from 400–200nm in 1000 seconds. From the results of PSDC, it shows the difference between two charging methods and the contribution of external photoeffect. The measuring for distribution of the trap levels by PSDC makes it a role for the future investigation of electrical aging and so on in polymer dielectrics.