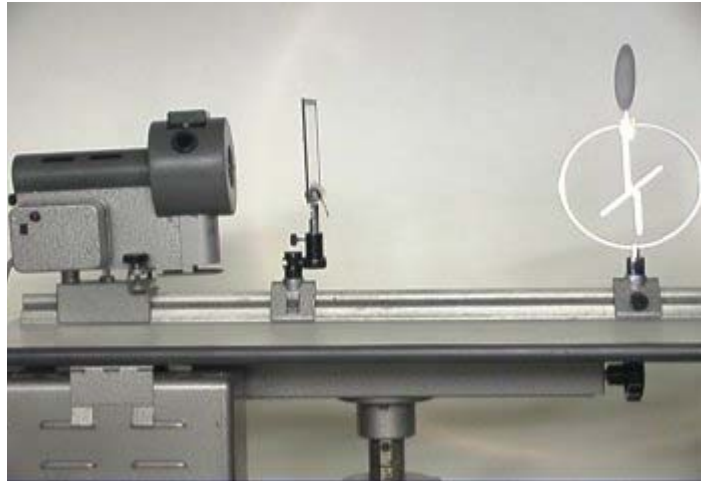


Question #249

Shown in the photograph below is a setup to illustrate the photoelectric effect. A zinc plate can be charged either positively or negatively using triboelectric charging of a rod and transfer of the charge on the rod to the plate. An electroscope connected to the zinc plate is used to verify the magnitude of the charge on the plate: the greater the deflection of the indicator from vertical, the greater the charge on the plate.



Clicking your mouse [here](#) shows the plate being charged negatively using a black rubber or amber rod rubbed with fur. If we charge the plate negatively and shine the light from an arc lamp through a glass plate onto the zinc plate, nothing happens, as seen by clicking your mouse [here](#).

If we remove the glass plate, ultraviolet radiation absorbed by the glass strikes the zinc plate, ejecting electrons by the photoelectric effect, and causing the charge on the zinc plate to decrease, as seen in another video by clicking your mouse [here](#). You may wish to position your mouse at the end of the electroscope indicator to make the decrease in charge more readily visible.

Now suppose that the zinc plate is charged *positive* using a glass rod rubbed by silk, as seen in a video by clicking [here](#), but with the glass plate shielding the zinc plate from the UV radiation.

When the glass plate is removed, allowing UV rays to strike the zinc plate, the charge level on the zinc plate will:

- (a) increase.
- (b) decrease.
- (c) remain the same.

Click here for [Answer #249](#) after April 17, 2006.

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For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).