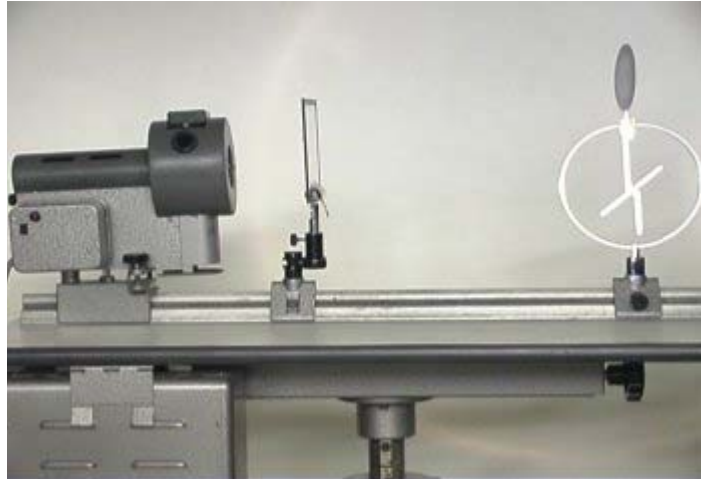


Answer #249

The answer is (c): the charge level on the zinc plate will remain the same, as seen in an mpeg video by clicking your mouse on the photograph below.



The UV photons are totally absorbed by single electrons in the negatively charged zinc plate, giving the electron enough energy to leave the plate. In this case they possess enough kinetic energy to allow them to escape from the plate entirely, reducing the negative charge level on the plate. Further, the negative charge on the plates provides additional repulsion of the escaping electrons.

When the plate is charged positive, any electrons that might leave the plate are attracted back to the plate by its positive charge. Protons do not absorb the photons, and further, they are immobile and unable to leave the plate. Therefore, the situation is not the same for electrons and protons, and the charge level on the zinc plate when it is positively charged remains the same.

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