**Abstract:** The semi-classical closed orbit theory is applied to study photodetachment of H− near an elastic spherical surface for

a *z*-polarized laser light. It is assumed that similar to the outgoing detached-electron waves from the source, waves propagate

from an image of the source behind the surface. We then calculate the classical action for those trajectories that are perpendicular

to the surface. The spherical effects in total photodetachment cross section are controlled by curvature \_ of the surface. For

zero curvature, our results match with the plane wall case while for a large curvature the results become the asymptotic value

of the cross section recently published.