A SIMPLE REFUTATION OF THE MAXWELL-HEAVISIDE THEORY: NORMAL REFLECTION

Maxwell-Heaviside Theory

Normal reflection from a perfect mirror is equivalent to parity inversion, under which:

$$\omega t - \kappa Z \xrightarrow{P} \omega t - \kappa Z.$$

There cannot be a phase difference upon reflection, which is counter-indicated by interferometry.

O(3) Electrodynamics

Normal reflection is correctly described by the non-Abelian Stokes theorem:

$$\oint \kappa \bullet d\boldsymbol{r} = g \iint \boldsymbol{B}^{(3)} \bullet d\boldsymbol{A}\boldsymbol{r}.$$

There is a phase change upon normal reflection which is observed by interferometry.
We have:

$$P\left(\oint\ \right) = -\oint\ ; \qquad P(\kappa) = -\kappa; \qquad P(\boldsymbol{r}) = -\boldsymbol{r}$$

$$P(g) = g; \qquad P\left(\iint\ \right) = \iint\ ; \qquad P\left(\boldsymbol{B}^{(3)}\right) = \boldsymbol{B}^{(3)};$$

$$P(\boldsymbol{A}\boldsymbol{r}) = -\boldsymbol{A}\boldsymbol{r}.$$

This is one of many known counter-examples to the Maxwell-Heaviside theory.