TRANSFORMATIONS of EM DESCRIPTORS under P (parity), T (time-reversal), & C (charge-conjugation).†

QUANTITY	NAME	transform under P	T	C	overall CPT	REMARKS
$\mathbf{r} = (x, y, z)$	position	− (polar)	+	+	−	$\mathbf{r}$ is the prototype <u>polar</u> vector.
$\mathbf{v} = d\mathbf{r}/dt$	velocity	− (polar)	−	+	+	$\mathbf{v}$ is T-odd; $\mathbf{a} = \frac{d\mathbf{v}}{dt}$ is T-even.
$\mathbf{L} = m\,\mathbf{r}\times\mathbf{v}$	angular momentum	+ (axial)	−	+	−	$\mathbf{L}$ is the prototype <u>axial</u> vector.
$\rho,\ \phi = \int \frac{\rho}{R}\,dV$	Scalar density & potential	+	+	−	−	ρ is Lorentz invariant { P & T signs are by convention.
$\mathbf{J},\ \mathbf{A} = \int \frac{\mathbf{J}}{R}\,dV$	vector density & potential	− (polar)	−	−	−	$\mathbf{J} = ne\mathbf{v}$ is evidently polar.
$\mathbf{E};\ \mathbf{D} = \epsilon\mathbf{E},\ \mathbf{P} = \frac{1}{4\pi}(\mathbf{D}-\mathbf{E})$	electric field vectors	− (polar)	+	−	+	$\mathbf{E} = -\nabla\phi - \frac{1}{c}(\partial\mathbf{A}/\partial t)$ is polar.
$\mathbf{H};\ \mathbf{B} = \mu\mathbf{H},\ \mathbf{M} = \frac{1}{4\pi}(\mathbf{B}-\mathbf{H})$	magnetic field vectors	+ (axial)	−	−	+	$\mathbf{B} = \nabla\times\mathbf{A}$ is evidently axial.
$\mathbf{F} = \rho\mathbf{E} + \frac{1}{c}\mathbf{J}\times\mathbf{B}$	Lorentz force / unit volume	− (polar)	+	+	−	... follows from $\mathbf{E}$ & $\mathbf{B}$, ρ & $\mathbf{J}$ transforms. Both elec. & mag. terms transform same way.
$u = \frac{1}{8\pi}(\mathbf{E}\cdot\mathbf{D} + \mathbf{H}\cdot\mathbf{B})$	EM field energy density	+	+	+	+	... follows from $\mathbf{E}$ & $\mathbf{B}$ transforms.
$\mathbf{S} = \frac{c}{4\pi}(\mathbf{E}\times\mathbf{H}),\ \mathbf{g} = \frac{\mu\epsilon}{c^2}\mathbf{S}$	Poynting (transport) vectors	− (polar)	−	+	+	... ditto.
$T_{ik} = \frac{1}{4\pi}(E_i D_k + H_i B_k) - u\,\delta_{ik}$	Maxwell stress tensor	+	+	+	+	... ditto.

† Augments Table (6.1), p. 249 of J. D. Jackson "Classical ElectroDynamics" (Wiley, 2nd ed., 1975).