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Luminosity, Brightness:

Irradiance (Intensity)

$$[Candela] = [cd] \equiv \mathcal{I} = ... \tag{1}$$

Radiance (Illuminance)

$$[Lux] = [\frac{cd \cdot sr}{m^2}] \equiv \mathcal{L} = \frac{\mathcal{I}}{F} \cdot \Omega = \frac{\mathcal{I}}{F} \cdot \frac{F}{r^2} \tag{2}$$

If orthogonal illumination at receiver ($\varepsilon_b = 0$) and Flux Density (Radiant Intensity) $\mathcal{I}_g = \mathcal{I}_b$ then:

$$\begin{aligned} &\frac{\mathcal{J}_g}{\mathcal{J}_b} = \frac{r_g^2}{r_b^2} \\ &\mathcal{I} = \frac{\mathcal{J}}{R^2} \iff \varepsilon_b = 0 \iff (\mathcal{A} \perp R) \end{aligned} \tag{3}$$

Luminescence:

Producing optical radiation with exitaction of atoms and melecules thorough transitions into ground state (emission of photons):

- Electroluminescence: electrical exitation with diods or gas discharge
- Photoluminescence: exitation with electromagnetic radiation (photons), phosphor or fluor
- Chemoluminescence: exitation with chemical reaction, e.g. luminol
- Bioluminescence: exitation with chemical reaction at living organs, e.g. oxidation of luciferin
- Triboluminescence: exitation with friction or tearing apart (e.g. sugar cristals)
- Radioluminescence: exitation with irradiation with $\alpha-$, $\beta-$ or γ-radiation