Summary of Lecture 20) Radiation from accelerating charge : $\beta \ll 1$

Poynting vector (for radiation field) $\underline{S}_{rad} = \frac{1}{\mu_0 c} E^2 [\hat{\underline{R}}]_{ret}$

Centred on retarded position $\propto \frac{1}{R^2}$.

$$= \frac{\mu_0 c q^2}{16\pi^2} \frac{\sin^2\theta \dot{\beta}^2}{R^2} [\hat{\underline{R}}]_{ret} \quad (20.2)$$

Flux of $\hat{\underline{S}}_{rad}$ through closed surface $\sim \oint \frac{1}{R^2} R^2 d\Omega \sim$ independent of R!

$$\frac{d\underline{P}}{d\Omega} = \frac{\mu_0 c q^2}{16\pi^2} \sin^2\theta \dot{\beta}^2 [\hat{\underline{R}}]_{ret} \quad (20.3)$$

$$P = \frac{\mu_0 c q^2 \dot{\beta}^2}{6\pi} \quad (20.4)$$

} Valid for $\beta \ll 1$

The Larmor formula.