2017 II : Q2 Exp

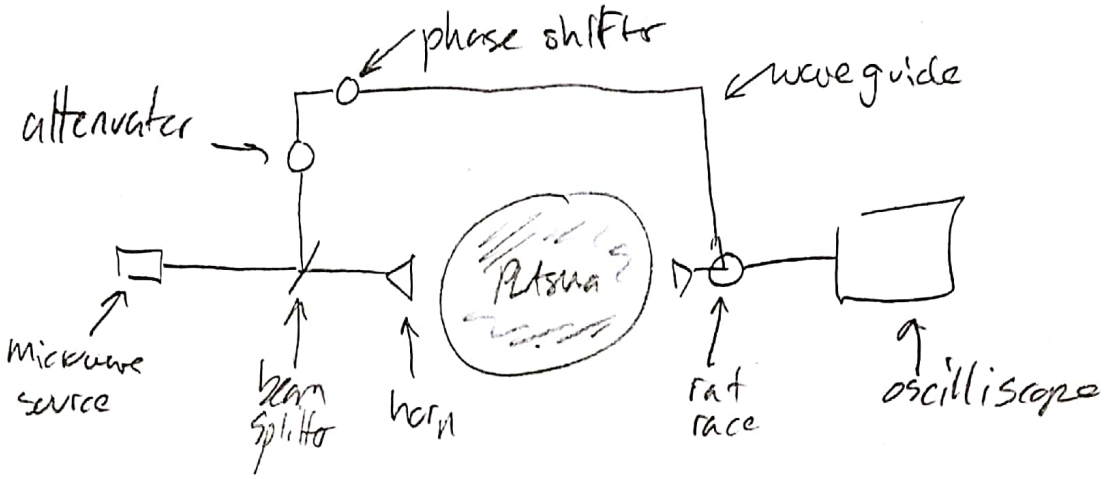
a) $\omega > \omega_p$ for transmission

$\omega_p \sim 5.6 \times 10^4 \sqrt{n_e} \ \frac{rad}{sec}$ $\quad n_e \sim 10^{10} - 10^{12}$

$\omega_p \sim 5.6 \times 10^9 - 5.6 \times 10^{10} \ \frac{rad}{sec}$

$f > \frac{\omega_p}{2\pi} \Rightarrow f > 10^{10}$ Hz $\quad$ choose $f \sim 100$ GHz

b.)



c.) Use Chlorine

→ more safety hazards

→ Formation of Cl^- may mess up attempts at ion density measurment because $n_e \neq n_i$ if Cl^- exists.