

Discussion accelerators

- What is the physical process leading to the formation of X-rays? How abundant is this process compared to other energy loss mechanisms for electrons?
- Why do we have an X-ray *spectrum*? Discuss the derivation of Kramer's rule. Why do we never see the "full" Kramer spectrum?
- Discuss the impact of filtration on the X-ray spectrum. How does this alter the mean photon energy? Is there any way to get rid of the characteristic X-rays?
- Discuss the cyclotron principle. Why is this principle not optimal for electrons?
- How many revolutions in a cyclotron are required to accelerate a proton to 20 MeV? Assume $V_D=100$ kV.