

Home Work : I2. ILC

Answer the following questions.

- Q.I2.1 What is the impact of RF (AC) accelerator ?
- Q.I2.2 What is the merit of Collider, comparing to the fixed target experiment?
- Q.I2.3 Why is the $e^+ e^-$ ring collider with more than 200 GeV CME difficult?
- Q.I2.4 What is the advantage of ILC (Linear Collider) comparing to LHC (hadron collider) ?
- Q.I2.5 How do you find the dark matter (invisible particles) with ILC?
- Q.I2.6 What is the design philosophy (strategy) of Linear Colliders?
Please explain how the large luminosity is obtained with a limited beam power.
- Q.I2.7 How do we get the polarized electrons?
- Q.I2.8 Electron beam is generated as photo-electron, but positron is generated by $e^+ e^-$ pair-creation. Why do we employ different methods?
- Q.I2.9 Why does the super-conducting linac require the long pulse ?
What is the practical limit on the pulse length in ILC case?
- Q.I2.10 One of the most important measurement in ILC is Higgs coupling. What kind of relation between the coupling and mass is expected in Standard Model ?
- Q.I2.11 ILC super-conducting accelerator is operated in 2K. Please explain the reason.
- Q.I2.12 The extremely small spot size at IP is not simply made with a strong focusing. Please explain the reason and how the small spot is obtained.