Turkey and our region. In this study, the main structure of the facility and planned electron beam diagnostics system is given in detail. It is planned that the TARLA facility will be completed in 2013 at Golbasi campus of Ankara University. This facility will give an opportunity to the scientists and industry to use FEL in research and development in our country.

2. DIAGNOSTIC REQUIREMENTS

- **Beam Position Monitors**: The signal of the button type BPM would not be strong enough for the bunch charge of electron beam of TARLA. Therefore stripline monitor will be more appropriate.

- **Beam Profile Monitors**: OTR monitors is appropriate at high energies (40 MeV). In the injector, scintillating screens will be used. Chromox (Al2O3:Cr) and YAG:Ce screens will be used at injector.

- **Bunch Charge Measurement**: Current transformers and Faraday Cup will be used at several points of the line.

- **Beam Loss Monitor**: Long ionization chambers using a single coaxial cable is sufficient for one-shot accelerators or transport lines.

- **Energy and Energy Spread Measurements**: Beam energy will be measured by spectrometer after the first and second linac. Bending magnets on the beam line and beam viewers can be used to measure the beam energy spread.

- **Bunch charge Measurement**: The bunch charge will be measured with two different methods; Faraday Cup and beam Current transformer.

- **Emittance Measurement**: In the injector the emittance can be measured by multi-slit or pepper pot techniques. After the second linac, the quadrupole scan method is more appropriate.

3. CONCLUSION

Diagnostic layout of the injector of TARLA is showed in figure 2. At the exit of the gun a current transformer will be used to measure the beam current. This device will be used also for preliminary test for the gun which is under manufacturing. The bunch charge will be measured several point of the beam line with faraday cup and current transformers. Beam profile is viewed by using the chromox and YAG:Ce screens at five point on the injector line. After the first linac the beam can be viewed by OTR monitors.

The energy spread will be measured by using the bending magnet and beam viewer in injector. A spectrometer can be used also to measure energy after the first and second linac. Multi-slit method will be used to measure the emittance after the third solenoid with a mask and beam viewer. Quadrupole scan method is appropriate after the second linac to measure the emittance. The beam diagnostic devices along the beam line are given in table 2.