Contribution ID: **134** Type: **poster**

Energy Measurements by Means of Transition Radiation in novel LINACs

Wednesday, 27 September 2017 19:30 (1 hour)

Advanced linear accelerator design may use Optical Transition Radiation (OTR) screens to measure beam spot size; for instance, such screens are foreseen in plasma based accelerators (EuPRAXIA@SPARC_LAB) or Compton machines (Gamma Beam Source@ELI-NP). OTR angular distribution strongly depends on beam energy. Since OTR screens are typically placed in several positions along the LINAC to monitor beam envelope, one may perform a distributed energy measurement along the machine. Furthermore, a single shot energy measurement can be useful in plasma accelerators to measure shot to shot energy variations after the plasma interaction. Preliminary measurements of OTR angular distribution of about 100 MeV electrons have been already performed at the SPARC_LAB facility. In this paper, we discuss the sensitivity of this measurement to beam divergence and others parameters, as well as the resolution required and the needed upgrades of conventional OTR diagnostics, using as an example the data collected at SPARC_LAB

Primary author: MARONGIU, Marco (ROMA1)

Co-authors: CIANCHI, Alessandro (ROMA2); Prof. MOSTACCI, Andrea (Sapienza); GIRIBONO, Anna (ROMA1); VACCAREZZA, Cristina (LNF); CHIADRONI, Enrica (LNF); DI PIRRO, Giampiero (LNF); PALUMBO, Luigi (ROMA1); SHPAKOV, Vladimir (LNF)

Presenter: MARONGIU, Marco (ROMA1)

Session Classification: Wine and Poster Session 2 (WG4-WG5-WG6-WG7)

Track Classification: WG5 - High-Gradient Plasma Structures/Advanced Beam Diagnostics