Contribution ID: **35** Type: **poster**

EMMITANCE's INFLUENCE ON TRANSVERSE DYNAMICS OF ACCELERATED BUNCHES IN THE PLASMA-DIELECTRIC WAKEFIELD ACCELERATOR.

Monday, 14 September 2015 19:30 (30 minutes)

An important issue in the study of transverse dynamics of charged particles bunches is determining the minimum transverse dimensions of the bunch. In the paper[1] was examined acceleration scheme in which to focusing the accelerated bunch transit channel in the dielectric structure was filled plasma. It has been shown that there is a location of bunches, which can achieve simultaneous radial and longitudinal acceleration of the accelerated focusing bunch wake fields, which were initiated by driver bunch.
In this paper we analyze the transverse dynamics of the charged particle bunches in the plasma-dielectric wakefield accelerator with the initial emmitanse bunch.
For the study used a plasma-dielectric structure with the following parameters: quartz tube ⊠d=3.7 with an outer radius b=0.511cm and the inner radius a=0.4cm. Parameters of bunches was selected to appropriate accelerator Argonne laboratory. Plasma density used in calculations np=7.455*10^11cm^-3. In that way,nb/np=1/3. Obtained results allowed to find the limits of the initial EMMITANCE bunch of charged particles, in which the dynamics of the accelerated bunches remains stable.
[1]R.R.Kniaziev,etc.NuclearInstrumentsandMethodsinPhysicsResearchSectionA. 2014,V.740,pp.124-129.

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Session Classification: Poster Session 1 (WG1-WG2-WG3-WG4) and Wine

Track Classification: WG1 - Electron beams from plasmas