

## Channeling 2018



Contribution ID: 31

Type: **Oral presentation**

# Wakefield Acceleration Based on Smith-Purcell Effect in Corrugated Dielectric Capillary

*Friday, 28 September 2018 16:00 (15 minutes)*

The accelerating gradient in conventional radio-frequency accelerators is limited to 100 MeV/m. A promising solution is to use wakefield effects either in dielectrics or plasma, where breakdown limit is higher. Cherenkov radiation (CR) is considered to be the main mechanism in dielectric wakefield acceleration (DWA). Our preliminary study with corrugated capillaries show some modification to the CR-generated wakefields [K.V. Lekomtsev et al., Phys. Rev. AB 21, 051301 (2018)], but the possibility of using Smith-Purcell radiation (SPR) in DWA is still under consideration. Here we propose to apply SPR in DWA instead of CR. Theoretical results are compared with computer simulation.

**Primary author:** Dr TISHCHENKO, Alexey (National Research Nuclear University "MEPhI")

**Co-authors:** Dr ARYSHEV, Alexander (KEK); Dr LYAPIN, Alexey (Royal Holloway University of London); Mr PONOMARENKO, Aleksandr (Russia); Ms SERGEEVA, Darya (National Research Nuclear University "MEPhI"); Prof. URAKAWA, Junji (kek); Dr LEKOMTSEV, Konstantin (Royal Holloway University of London); Prof. STRIKHANOV, Mikhail (National Research Nuclear University "MEPhI"); Prof. TERUNUMA, Nobuhiro (KEK); Prof. BOOGERT, Stewart (Royal Holloway University of London)

**Presenter:** Mr PONOMARENKO, Aleksandr (Russia)

**Session Classification:** W2.2 Advanced Generation of THz and X-ray beams