



Contribution ID: 67

Type: Poster

## Generation of Pulsed Neutron Beam by Channeling Radiation from Relativistic Electrons

Monday 7 September 2015 16:30 (2 hours)

As is well known, the channelling radiation (CR) from sub-GeV relativistic electrons is characterized by brilliant peak in intensity at the photon energies within 1-5 MeV. These photons may lead to the photoneuclear reaction ( $\gamma, n$ ) in the downstream target consisting of nuclei with appropriate neutron binding energy. Since the CR spectrum and its maximum position depends on the initial electron beam energy, the neutron yield is complicated function of the electron beam energy. Here, we present the results of calculations of the neutron yield generated by CR from initial electrons with energies 200 - 800 - 1600 MeV (SPARC Facility, LNF) channeled in a Si, Ge and W crystals, which is directed to Be or D target. The comparison with other methods of generation of fast neutron beams (with neutron energy up to several MeV) is performed, especially with so called "neutron focus in the field of synchrotron radiation"

**Primary author:** Dr BOGDANOV, Oleg (National Research Tomsk Polytechnic University, 30, Lenin Avenue, Tomsk, 634050, Russia)

**Co-authors:** Prof. DABAGOV, Sultan (INFN Laboratori Nazionali di Frascati, Via E. Fermi 40, I-00044 Frascati (RM), Italy; RAS PN Lebedev Physical Institute & NRNU MEPhI, Moscow, Russia); Prof. PIVOVAROV, Yuri (National Research Tomsk Polytechnic University, 30, Lenin Avenue, Tomsk, 634050, Russia; V.E. Zuev Institute of Atmospheric Optics, SB RAS, 634021 Tomsk, Russia)

**Presenter:** Prof. PIVOVAROV, Yuri (National Research Tomsk Polytechnic University, 30, Lenin Avenue, Tomsk, 634050, Russia; V.E. Zuev Institute of Atmospheric Optics, SB RAS, 634021 Tomsk, Russia)

**Session Classification:** Poster Section

**Track Classification:** 5. Coherent Bremsstrahlung and Channeling Radiation