Referee report:

**“Studydeeply subcritical electronuclear systems and possibilities of their application to energy production, transmutation of radioactive waste and research in the field of radiation a material science”. Part III. Quasi infinite target (Project E&T&RM)**

Presented in the report is a proposal for the opening of a new project which builds on the results of the QUINTA project, carried out at the JINR from 2011 to 2013, in which a natural Uranium target assembly was irradiated with deuterons in the energy range of 0.5 — 4 GeV/A. The QUINTA project carried out systematic studies of:

1. The spatial distribution of reaction density of(n,f), (n,γ) and (n,xn) reactions;
2. Theintegral numbers of(n,f) and (n,γ) reactions;
3. neutron leakage from the surface of the target set-up — where it was observed that there was no considerable divergence with calculations for low-to medium- neutron energies while the opposite is noted at higher energies (En>20 MeV);
4. The analysis of total multiplicity of neutrons produced in the experimental set-up. Here an observation is made of the fact that the values do not depend on deuteron energies and MCNPx calculations fall within range of experiential results – to within an accuracy of 20%.

Owing to the limited size of the QUINTA setup, it was therefore difficult to determine – among others – reconstruction of the rigid part (En>20 MeV) of the neutron spectrum. The authorstherefore propose the development of a Big Uranium (TS BURAN) configuration as a second stage of the refinement of the features of the E&T-SNF project, where it is expected, from calculations, that the total neutron multiplicity will increase two-fold in the quasi infinite arrangement while the neutron leakage is expected to drop by a factor of 3.

These studies will show interesting results and it is evident that a lot of expertise has been gained in the previous studies. I strongly support the proposal.

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4 June 2017