* **Reviewer Remarks:**

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| **Reviewer #1** | |
| * Page 1: You propose to add U238 with thorium to denaturate U233 and limit the proliferation risks. Yet, this would lead to Pu production, could you comment this please? | * “Adding U238 with thorium to denaturate U233 and limit the proliferation risks” is not proposed by the authors of this paper. This paragraph presents the work done in reference 6.   Kryuchkov E.F., et al. Isotopic Uranium and Plutonium Denaturing as an Effective Method for Nuclear Fuel Proliferation Protection in Open and Closed Fuel Cycles. National Research Nuclear University “MEPhI”, Texas A&M University Russia.   * But in our work, the production of Pu was calculated and presented in section 3.5.5 with a comment in the conclusion. |
| * Page 2: The remaining assemblies instead of the rest. | * Done. |
| * Page 4 paragraph 2.2 "only MCNPX is totally capable of treating" | * Done |
| * Figure 3: There should be some high energy neutrons in the target zone due to spallation reactions, why are they not visible on the plot. | * The high-energy neutrons in the target zone are added to the graph in the revised paper. |
| * Figure 4 and onwards: What are the points and the line on your plot? | * We just added the points as markers on the lines (lines and points are the same). But we modified it in the revised version. |
| **Reviewer #2** | |
| * There is no word or reference to the European project EUROTRANS in which exhaustive core conception was conducted and led to reference designs. | * Because the European project EUROTRANS is devoted to the transmutation of high-level waste, focusing on transmutation in an ADS. But, we focused on the 233U breeding and energy production from the ADS. |
| * In Section 3.2 Table 3: what is the cycle length ? does is correspond to once-through core loading or fractional one ? | * The cycle length is determined as the reference, which is determined by the Keff values at the BOC (0.960) and the EOC (0.893). * In our calculation to satisfy this condition, the cycle length is found to be 1200 EFPD, and we mention this point in the revised paper. |
| * A Keff as low as 0.88 would be able to sustain a 840 MWth core production without upgrade in the spallation source? | * Yes, the spallation source needs upgrading to sustain the ADS power at this value of Keff, but the Keff value was adjusted to the reference we mentioned in the revised paper, which ends their calculation at a 0.89 Keff value. |
| * In conclusions, Pu production by ADS cannot be directly compared to those of the conventional (UOx) PWR. Only production by thermal power (kg/MWth) makes sense here. | * Yes, you are right, and we compared the plutonium production according to thermal power (kg/MWth) in the revised version. |

All authors performed their best efforts to reply all the reviewer comments, and they welcome any additional comments.