

Erratum to “Proposal of a Deuterium-Deuterium Fusion Reactor Intended for a Large Power Plant” [World Journal of Nuclear Science and Technology Vol.14 No.1 2024]

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<https://doi.org/10.4236/wjnst.2024.141001>) unfortunately contains mistakes.

About the Reactivities

Reactivities were inaccurate. In **Figure 1** below, more accurate reactivities are taken into account.

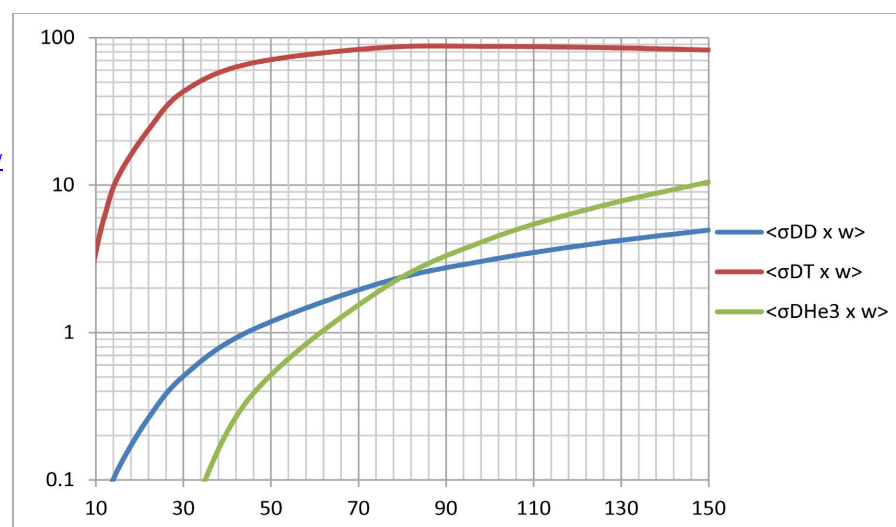


Figure 1. Reactivities of the D-D/D-T/D-He3 fusions. The abscissa is the equilibrium plasma energy ($E_{\text{equi}} = E_{\text{com}}$) in keV and the ordinate is the reactivity in $\text{m}^3/\text{s} \times 1\text{E}-23$.

About Charge Exchanges between Ions and Gas Neutrals

It was supposed there would be permanent losses by charge exchanges on neutrals. This behavior exists at the beginning of the operation but disappears progressively as the fusion reactor wall is not in contact with the gas, so charge exchanges will not be considered. Therefore, the variables $\gamma_{cep} = \gamma_{ceT} = \gamma_{ceHe3} = \gamma_{ceHe4} = \gamma_{ceD} = 0$ are forced to 0.

Results and Conclusion

For a fusion radius of 4.5 m, the results are the following:

- Kovrizhnikh scaling: $nD = 15E19$, $E_{inj} = 610$ keV, $E_{equi} = 114$ keV, $Q = 1.80$
- Bohm scaling: $nD = 18E19$, $E_{inj} = 380$ keV, $E_{equi} = 91$ keV, $Q = 1.64$

These low mechanical gains Q greatly limit the advantage of this type of D-D reactor.

The modified executable program with its Delphi 6 source can be downloaded from this direct link: http://f6cte.free.fr/D_D_reactor_model_V_1_1.zip or on the Zenodo WEB open repository by searching with the title of this article.