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Is Sunflower-Based Plutogenization Doable? An Analysis Relying on a Simple Model

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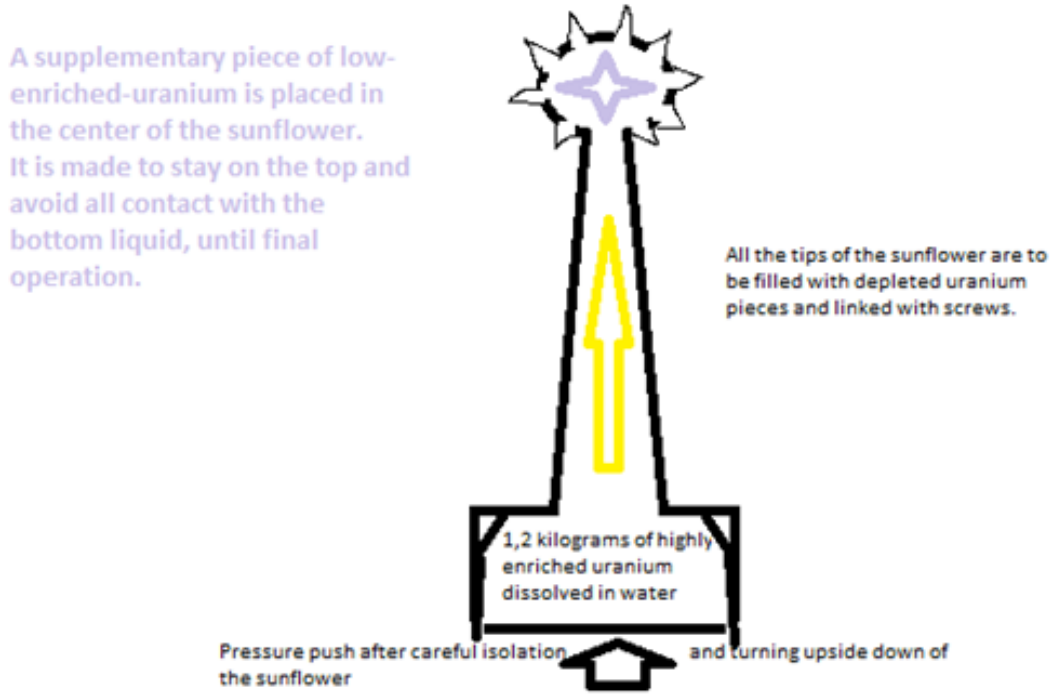
Abstract

Is discussed a sunflower model relying on a vertical explosive fission-accelerated breeder of plutonium. Two proposals are discussed within. Some biological risks are also discovered. A possible way of success emanates from a rational calculation.

The sunflower-model for plutogenization relies on a vertical sunflower made of a material dominated by osmium and tungsten, which relies on Fermionic condensation for pressurization and breeds in principle easily harvestable plutonium on its petals.



This model, above, is extremely likely to produce an explosive effect that will break the sunflower.

It is also possible that, would human flesh or blood be used in the liquid (for instance), a Coronavirus be generated, with delayed neutrons in the plasma explosion surrounding the sunflower provocating a delayed feedback forming it with returning compression.

The alternative option would rely on helium gas instead of water for the fissile material of the prop, and a station of the sunflower bottom up. This slow plutogenization presents many risks, including the risk of a leak of helium gas killing the process, and demands absolutely plutonium 239-240 as basis instead of HEU. It also presents a risk of overheating along with a blast of the flower. The screws which are a condition for harvesting of the plutonium are indeed likely to melt down.

There are also issues related to the cooling before harvesting, and in between the heat is more likely to have merged down the screws with the metallic matter of the sunflower, if it has not exploded earlier.

In a better system relying on a box for plutogenization, it is easier to rely for instance on the Triga-like subcritical model presented in (Pirot, 2021), or for instance on a mix of helium and depleted uranium dust in (Pirot, 2022).

The alternative of rapidly sticking cements[1] as neutron material along with depleted uranium only in the mix to be poured into the central sunflower where a piece of highly enriched material is set could work, to some conditions. A neutron source has to be set under the sunflower to create a neutron stream within up to the flower. The use of the neutron source directly into the flower is recommended against because the neutron flow being too close to the neutron source, heat-up related to the impossible-to-prevent fission within is likely to melt down the neutron source as well (as it needs to be placed in-between petals in this configuration), especially for chip-based laser neutron sources targeting the tungsten. In this pattern as well a LEU piece inside the flower can help. The use of Cf252 instead could be also envisioned. It presents a criticity risk that may or may not be controlled, if too much cement and depleted uranium create a pressure onto it, from, simply, the impact of the downpour.

The use of solar neutrons along with a much deeper injection of the dissolved-in-water HEU, into the flower, could also cause in many configurations pollution of surrounding farm fields or households, for instance. Indeed as tungsten and osmium are not favorable to the use of solar neutrons, weaker materials would need to be used, and this also increases the risk of a preliminary explosion. Neutrons passing through the petals start opening leaks that later can facilitate the criticity burst or at least depressurization killing the plutogenization process (along with supplementary costs for harvesting the insufficiently plutogenized material).

In principle the harvested sunflower petals can be directly used for e.g. warhead making but this goes against the use of tungsten and osmium for their composition. Weaker metals, beneficial for warhead tips but also more flammable, increase the risk of explosion during the plutogenization process.

In conclusion, the risks are superior to the benefits in most configurations, except in cement-plutogenization with a neutron source and with respect of the most basic human rights (to avoid coronavirus generation).

References

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2. Pirot, F. (2022). A « Water Motor » With an Accelerator, Water With High Natural Radioactivity and Fission, *Int J of Theoretical and Computational Physics,3*(1) DOI : 10.47485/2767-3901.1022

[1]Those used for rapid masonry, that have a volatile nature, typically “25 minutes sticking” are ideal so long as no water is introduced within their mix with depleted uranium dust.