RESPONSE TO DR. DEAN'S REPORT

Each bullet point from Dr. Dean's report is addressed.

1. First bullet point: *There is no charge distribution in a point like nucleus. To measure a nuclear EDM requires, at least, a charge distribution. Thus, there is no connection from the measurements to a nuclear EDM.*

   (a) **1st sentence:** *There is no charge distribution in a point like nucleus*: That statement by Dr. Dean reveals a serious misunderstanding of what physicists mean when they talk about a "point-like" particle; furthermore, the notion of a point-like EDM is not novel and its potential was derived generations ago. A point-like particle does not necessarily mean that the real particle has a null volume, it means that theoretical/experimental corrections due to the spatial extension of the real particle are insignificant. In my experiment, the electrons in the superconductor have a wavelength $\lambda_e \sim 0.1$ m while the nuclear charge radii of tantalum and lead are ≈ 5 fm. More to the 'point', the upper-limit on the characteristic length of subatomic EDMs from Larmor frequency experiments is $< 10^{-26}$ cm. In this physical context, it is entirely justified to treat the nuclei as point-like particles with non-zero magnetic and electric dipole moments. Lastly, at tree-level in Quantum Field Theory, particles are point like and the Lagrangian given in Eq.(1) of my paper formally defines a point-like particle with non-zero magnetic and electric dipole moments.

   (b) **2nd sentence:** *To measure a nuclear EDM requires, at least, a charge distribution*: That sentence is not clear. Is Dr. Dean making the trivial statement that in order to measure a non-zero nuclear EDM, the nuclear EDM must be non-zero? Or, is he stating that in order to measure a nuclear EDM, the electromagnetic form factors of the nucleus must be known? The latter possibility is certainly false since, for example, neutron EDM experiments treat neutrons as point-like with no reference to neutron form factors. See for example Abel et al., Physical Review Letters 124 (2020), 10.1103/PhysRevLett.124.081803.

   (c) **3rd sentence:** *Thus, there is no connection from the measurements to a nuclear EDM*: that sentence stems from a) a conceptual misunderstanding of point-like particles and b) a statement that is either trivial or misunderstands EDM experiments. It is therefore unsupported.

2. Second bullet point: *Classical descriptions of currents in a bulk material, even if superconducting, are not relevant to measurement of an EDM of a nucleus. The sample being probed is bulk material. The graphs presented appear to be measurements of bulk material properties.*

   (a) **1st sentence:** *Classical descriptions of currents in a bulk material, even if superconducting, are not relevant to measurement of an EDM of a nucleus.* That sentence appears to follow from Dr. Dean's erroneous conclusion in the first bullet and it is false: Eq.(34) and Eq.(35) of my paper provide the equations relating the rate of change of the supercurrent to the nuclear EDM of the bulk material.

   (b) **2nd sentence:** *The sample being probed is bulk material.* This is true which is why this method is so sensitive: this method leverages the macroscopic number of nuclear EDMs in the bulk superconductor to measure the nuclear EDM.

   (c) **3rd sentence:** *The graphs presented appear to be measurements of bulk material properties.* The graphs presented in Fig.(10), Fig.(12), Fig.(13), Fig.(15), Fig.(16), and Fig.(17) depict SQUID data as a function of time whose slopes can be converted to the rate of change of the supercurrent using Eq.(55). The rate of change of the supercurrent can then be used to extract the nuclear EDM of the sample material with Eqs.(34,35).

3. Third bullet point: *There is no comprehensive or proper error analysis (both statistical and systematic).*

   (a) Evidently, an error analysis was performed in my paper since I provided confidence levels, statistical uncertainty, listed the various sources of potential systematics, etc. In an objective, scientific paper review where an error analysis is deemed insufficient, the reviewer should list missing analyses and argue as to why they should be included. Furthermore, in an objective, scientific paper review, subjective words like "comprehensive" and "proper" are discouraged as they can be vehicles for biased decisions.