

Progress towards replication; revisited

Michael McKubre

SRI International, USA (retired to New Zealand).

E-mail: mmckubre@gmail.com 53 Churchill Drive, Napier, 4112, New Zealand

I addressed this topic first in 2002 in a presentation at ICCF-9 held at Tsinghua Univ. in Beijing. Subsequently in the proceedings of that conference I and three of my closest collaborators (F. Tanzella, P. Tripodi and V. Violante) published [1] "Progress towards replication". In this we described a collaborative effort formally established between SRI International in Menlo Park, California, and ENEA (Frascati) in Italy. to provide a framework for an International replication effort that focused the complementary skills of the two laboratories on carefully selected problems of Pd/D studies. Our joint effort was an attempt to establish reproducible experiments that can be used to prove the existence of a new phenomenon (or phenomena) based on: (i) fundamental theoretical understanding; (ii) clear and simple experiments; and (iii) reliable diagnostic measurements of unarguably nuclear effects.

Why was such formality sought and considered necessary? Why were we attempting to test and demonstrate cross-laboratory (and trans-national) replicability? What experiments were attempted? What success was achieved? Where does the situation of replication in the broader field of Condensed matter Nuclear Science¹ stand today nearly two decades later? I will attempt to answer these questions in the larger context of the need for and achieved success of replication in our field today.

Anticipating that my comments may cause some discomfort, even controversy, I will speak as a single author expressing my opinions alone. A single reproducible experiment that works every time (or most times) based on a complete and understood written protocol that yields unambiguously nuclear or nuclear-level products would transform our field overnight from "marginal" to "main-stream". I don't believe we have achieved this state in any experiments with which I am familiar. Nevertheless it is very clear to me from study of the literature and my own work that a real phenomenon of CMNS exists. What prevents us from taking the final step to full reproducibility and widespread acceptance? What is, or might become, our transformational reference experiment?

[1] McKubre, M.C.H., F. Tanzella, P. Tripodi and V. Violante, Progress towards replication. in The 9th International Conference on Cold Fusion, Condensed Matter Nuclear Science, Tsinghua Univ., Beijing, China: Tsinghua Univ. Press, 2002.

¹ CMNS, a title created by the International Advisory Committee of ICCF-9 in Beijing.