

## **Appeal of decision to reject manuscript LG18284**

Dear Editorial Board member,

I am hereby appealing the editorial decision to reject my submitted manuscript LG18284.

The manuscript was rejected on the recommendation of three referees, A, B and C. The only thing the three referees agree on is that my paper should not be published. But they give completely different and sometimes conflicting physics arguments for their recommendation. And their arguments are all wrong. I have provided earlier responses to referee A's first report and to referee's B report. With this appeal I am also submitting detailed responses to referee A's second report and to referee C's report.

### **In a nutshell:**

**Referee B** said that my paper is wrong because "*the superconducting condensate shorts the connection, so actually having a finite electric field across a superconducting sample requires either a current exceeding critical current or highly non-equilibrium situation... Therefore, the inconsistency involving Joule heating is completely made up.*" That is completely wrong, as I explained in my response, and is supported by the fact that neither of the other referees agrees with that.

**Referee A** says my paper is wrong because "*The problem with this argument is that the system and the reservoir are both considered as closed finite systems. But the reservoir is an open system, or equivalent, an infinite system.*" That is wrong, as I explained in my first response to this referee, and in more detail in my response to his/her second report. It is supported by the fact that referee C does not agree with it.

**Referee C** read my first response to referee A and agrees that "*no hint has been given as to what physics may be missing and I find that the author's response to this criticism makes sense.*" He/she suggests that "*In order to make the paper publishable, the author should make a more complete study of entropy production, including the  $(\text{grad } T)^2$  term.*" In my attached response to referee C, I explain clearly why such study and such extra terms would change nothing in my conclusion and would add nothing useful to the paper.

I am convinced that my paper is correct. If it is incorrect, it is so for a subtle reason that has not yet been identified by any referee, nor by the several physicists I have discussed it with. I would be happy to change the title to "Possible inconsistency of the conventional theory of superconductivity" if that's what it takes to get it published in PRL. If a PRL reader subsequently finds a mistake, which undoubtedly would be subtle because nobody has found it yet, it will be a service to science. If there is no mistake, it will lead to a paradigm shift, as referee C certainly realizes.

Thank you for considering this appeal. I would be happy to provide any other information that would be useful.

Jorge E. Hirsch