

Abstract Submitted
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Emergence of Massive Dark Current in Galactic Dynamics via “Faraday” Induction JAMES SLINKMAN, Retired — To account for the observed flat rotation curves of galaxies, Alexander and Smolin[1] have proposed that dark matter emerges from a dark superfluid, background state. They invoke a “dark magnetic potential”. On the other hand, Vikram[2] proposes that the dark sector is superconducting. A dark vector potential is a central feature. The present work builds on this prior work as follows: 1) An intuitive mechanism for the generation of a dark magnetic field is proposed. Specifically, a “BCS-like” vector potential is generated via “Faraday” induction by the observable rotating galactic mass current. 2) This potential couples to a dark superconducting background causing massive dark photons to emerge, defining a “dark” supercurrent and resulting in higher total galactic mass current. In one scenario, the coupling admits an interesting picture in which the emergent dark photons would have negative mass, as postulated by Farnes[3]. Finally, a laboratory scale experiment is proposed which might bolster the notion of galactic “supercurrent”. [1] Stephon Alexander and Lee Smolin, arXiv:1804.09573 [2] Alexander Vikram, arXiv:1712.10311v1 [3] J.S. Farnes, arXiv:1712.07962v2

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