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Abstract for an Invited Paper for the MAR12 Meeting of the American Physical Society

Taking Off From Maxwell's Equations

FRANK WILCZEK, Massachusetts Institute of Technology

I will discuss how we are still discovering new continents in the conceptual world opened up by Maxwell's equations. I will very briefly sketch, in particular, how very natural extensions of those equations describe superconductivity and the deep structure of fundamental particle interactions. Then I'll show how a newer cluster of extensions connects ideas about (perhaps no longer all that) exotic quantum particles and materials.