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Abstract for an Invited Paper  
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### **Superconductivity and particle physics**

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I will briefly review and give a modern perspective on some classic applications of the ideas of superconductivity theory to fundamental particle physics: spontaneous chiral symmetry breaking in vacuum QCD, the Higgs mechanism in electroweak theory, and color superconductivity in dense hadronic matter; and also the confinement problem. Then I will discuss some frontier topics that carry the ideas further and in new directions: supersymmetry and the superHiggs mechanism, exotic quantum statistics of superconducting vortices.