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What we do and do not understand about electronic structure and superconductivity in sodium cobaltate?

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I will pose several questions and will attempt to answer at least some of them. (1) Why details of the electronic structure, including the Fermi surface topology, are particularly important for understanding superconductivity in this material? (2) What do standard band structure calculations get right, where they surely fail and where are they questionable? (3) How well do we understand the ARPES results? (4) What are possible effects of electron-electron correlations beyond LDA? Why LDA+U is worse than LDA for Na_xCoO_2 and to what extent can we believe DMFT? (5) What is the role of Na in the formation of the electronic structure and Fermi surface? To what extent the surface bands are the same as bulk?