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Spin fluctuation theory of pairing in AFe_2As_2 THOMAS MAIER, Oak Ridge National Laboratory, YAN WANG, ANDREAS KREISEL, PETER HIRSCHFELD, University of Florida, DOUGLAS SCALAPINO, University of California, Santa Barbara — The absence of Fermi surface hole pockets in the alkaline iron selenides has challenged the usual spin fluctuation arguments leading to the most popular s+- superconducting gap structure in the closely related iron pnictide superconductors. Thus they provide a new venue to study the nature of pairing in a system with only electron pockets. Here, we present the results of spin fluctuation calculations of the pairing interaction based on realistic descriptions of the bandstructure of the iron selenides. In particular, we will discuss the predictions of these studies with regard to the gap structure in the absence of hole pockets, its consequences for the magnetic neutron scattering spectrum, and their evolution with doping.

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