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A diagonal 2-orbital ladder model for the Fe based superconductors EREZ BERG, Harvard University, STEVEN KIVELSON, Stanford University, DOUGLAS SCALAPINO, University of California, Santa Barbara — We study a diagonal 2-orbital ladder model for the Fe based superconductors using the density matrix renormalization group method. The diagonal geometry treats the x and y directions symmetrically, and therefore it is particularly suitable for addressing some of the outstanding problems of the field, such as nematic order and the competition between $A_{1,g}$ and $B_{1,g}$ pairing symmetries. At half filling, we find a close competition between a "spin-striped" state and a non-collinear "spin-checkerboard" state, as well as significant nematic correlations. Upon finite hole or electron doping, the dominant pairing correlations are found to have $A_{1,g}$ ($S-$wave) symmetry.

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