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Single Hole Dynamics in a 2D quantum antiferromagnet in a stripe-ordered by fluctuating background SATYAKI KAR, Department of Physics, FSU, EFSTRATIOS MANOUSAKIS, Department of Physics, FSU & MARTECH — We study the dynamics of a hole in a $2D$ lattice in a stripe-ordered background. Starting from $t-J$ Hamiltonian, we treat the J-term using the linear spin wave theory and we linearize the hole hopping in terms of spin-deviation operators. We find the dispersion relation of the eight different spin-wave modes and we solve the Dyson's equation within the non-crossing approximation for the eight hole green's functions. We investigate the hole energy bands, the spectral functions and the quasi-particle peak broadening.

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