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Quantum spin metal state on a decorated honeycomb lattice KONSTANTIN TIKHONOV, Texas A&M Univ., MIKHAIL FEIGEL'MAN, Landau ITP — We present a modification of exactly solvable spin-(1/2) Kitaev model on the decorated honeycomb lattice, with a ground state of "spin metal" type. The model is diagonalized in terms of Majorana fermions; the latter form a 2D gapless state with a Fermi-circle those size depends on the ratio of exchange couplings. Low-temperature heat capacity $C(T)$ and dynamic spin susceptibility $\chi(\omega, T)$ are calculated in the case of small Fermi-circle. Whereas $C(T) \sim T$ at low temperatures as it is expected for a Fermi-liquid, spin excitations are gapful and $\chi(\omega, T)$ demonstrate unusual behavior with a power-law peak near the resonance frequency. The corresponding exponent as well as the peak shape are calculated.

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