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Fermi spin current contribution in spin wave spectrum of spin-1/2 fermions.[1] PAVEL ANDREEV, LEONID KUZMENKOV, Lomonosov Moscow State University — General theory predicts the presence of the thermal part of the spin current in the spin evolution equation for bosons and fermions. For bosons in Bose-Einstein condensate state, it is equal to zero. However, for degenerate fermions it is non zero and it can give a considerable contribution since it describes the Pauli blocking. In this work, we consider spin-1/2 partially polarized fermions. We derive an equation of state for the thermal part of the spin current of degenerate fermions and call it Fermi spin current. We present the spin evolution equation with the Fermi spin current as a part of applied hydrodynamic model. We consider spectrum of collective excitation and describe contribution of the Fermi spin current in the spin wave spectrum.

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