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Review text:

One of the challenging puzzles in modern physics is a discrepancy between the standard model prediction of the muon's anomalous g factor and its experimental value. The recent Papini's version of Mashhoon's Hamiltonian attributes this discrepancy to a time-reversal symmetry violation. The letter in question develops the necessary mathematical background for the model by extending the current "bosonic" version of the theory of pseudo-Hermitian Hamiltonians to "fermionic" case. The essence of difference is that the antilinear time-reversal-like operator T is involutory in the former case and anti-involutory in the latter case. The main theorem (it is of key importance that the diagonalizability of Hamiltonians is assumed there) states that all the latter cases are characterized by an even degeneracy of their real energy levels, in a way which generalizes the well known Kramers degeneracy theorem to non-Hermitian problems.