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## Spin radiation effects in classical and quantum electrodynamics: New look at an old experiment

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The spin radiation effects in the one-particle sector of QED have a twofold origin and could be understood in terms of the Frenkel classical model of “rotating electron”. The imaginary part of the mass shift and the radiation power receive the spin contributions of two kinds. The first one connected with the fermion magnetic moment which constitutes the additional source of the electromagnetic radiation; the contributions of the second kind have the opposite sign and arise owing to the small alteration in the particle acceleration which resulted from the Frenkel addition to the mass of the particle. The contributions of the second kind into above mentioned quantities are dominated over the first one, so giving an explanation to the ‘wrong’ sign of the full spin contributions. We show that not only the sign but the coefficients as well can be explained with the wanted accuracy within classical electrodynamics if one would calculate the spin additions to the mass shift and to the power of radiation with the use of canonical variables. The analysis of Novosibirsk 1984-year experiment on the observation of spin light confirms the unusual dependence of radiation on the spin direction.

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