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The Influence of the Spin Exchange and the Triple Nitrogen Atoms Recombination on the Magnetic Resonance Signal of Cesium Atoms in the N_2–Ar Afterglow VICTOR KARTOSHKIN, SERGEY DMITRIEV, NICOLAY DOVATOR, Ioffe Physico-Technical Institute of the Russian Academy of Sciences — The investigation of spin-exchange collisions between optically oriented cesium atoms in the ground $^2S_{1/2}$ state and nitrogen atoms in the ground $^4S_{3/2}$ state reveals an anomalous behavior of the magnetic resonance signal of cesium atoms in the afterglow in an N_2-Ar mixture. It is found that such a behavior of the magnetic resonance signal is explained by a slow change in the concentration of nitrogen atoms (due to the recombination of these atoms in the triple collisions) in the absorption cell, which affects the magnetic resonance of cesium atoms via efficient spin exchange.

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