# Rubidium spectroscopy in high magnetic fields

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Alkali atoms have been extensively studied in the field of atomic spectroscopy. Here we present spectroscopical data of a rubidium vapor immersed in a static magnetic field generated by permanent magnets. This kind of investigations could in principle open possibilities in high magnetic field metrology (greater than 100 G) with optical probes. This challenge directly leads to the measurement of Landé g-factors for excited states of alkalis, which are nowadays poorly known. Landé g-factor has a long history of improvement in experimental determinations and theoretical calculations. For a free electron, while Dirac equation predicts a value of $g_e = 2$, quantum electrodynamics corrects this value reaching a very good agreement between theory and experiments. In a bound state, such a s an atom, we have to consider the Landé $g_J$ factor relative to the J total angular momentum. Schroedinger level atomic physics predicts its value, a combination of the free-electron value and the value associated to the orbital angular momentum. Deviations from that prediction are produced by core-valence correlation, relativistic effects and bound-state QED, these effects being of the order of $10^{-5} - 10^{-6}$.