Identification of new electronic levels in the holmium atom and investigation of their hyperfine structure

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Highlights

- The procedure of the search for new electronic levels in the holmium atom (the main aim of the work) was described
- Hyperfine structure of 73 spectral lines was recorded with the method of laser induced fluorescence
- 21 new odd-parity levels were found, and their energies and the hyperfine structure constants A and B were determined
- The existence of each level was verified by examination of a few laser-excited transitions, and recording of a few fluorescence channels
- New levels found may find their applications in the description of the interactions in the atom and in the metrological and quantum optics experiments