

EMPIRICAL PERFORMANCE – CLAUDE SONNET 5

This is the strongest part of the programme on its own terms. Reproducing the Sommerfeld–Dirac fine-structure levels to roughly 2 parts in 10^{10} for 30 states from a closed-form three-term expression is a genuine, checkable quantitative result, and PTV_DATA.txt shows this holding consistently across widely different (n, l, j) combinations, from $1S_{1/2}$ through $8D_{5/2}$. For hyperfine structure, agreement with the Horbatsch & Hessels (2016) experimental values is reported to sub-MHz precision across all 30 states, and the stability of B at -3.000 across states is a meaningful, non-trivial regularity in the fit rather than an assumed input.

The k parameter, which differs from 1 for states other than $nS_{1/2}$, is rationalized after the fact (via an eccentricity argument) rather than predicted before the fit was made.