Determination of the scattering length of the $a^3\Sigma^+$ potential of ^{87}RbCs E. TIESINGA, NIST, E. ARIMONDO, University of Pisa, Italy, M. AN-DERLINI, INFN, Florence, Italy — We have determined the scattering length of the $a^3\Sigma^+$ potential of ^{87}RbCs based on experimental observations from the literature and the known value for the long-range dispersion coefficient. Our analysis uses quantum defect theory and analytical solutions of the Schrödinger equation for a van der Waals potential. We find that the scattering length is either 700^{+700}_{-300} a_0 or 176 ± 2 a_0 with more confidence associated to the first value, where a_0=0.05292 nm is a Bohr radius. An independent value of the van der Waals coefficient could not be determined and the best theoretically determined C_6 value was used.

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