LIFETIME OF A RYDBERG ATOM

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Lifetimes relative the spontaneous decay of helium and alkali-metal Rydberg atoms in their *s*-, *p*-, *d*-, *f*-Rydberg states are calculated in the Fues' model potential approach. An asymptotic approximation for the lifetimes is given in the form of a cubic polynomial in effective principal quantum number n of a highly excited state. The coefficients are derived for the polynomials determining the lifetimes of highly excited states in a wide range of n values from 10 to 1000 with a fractional inaccuracy less than 1%.