Table I.

Optimized Coefficients (p_1, q_1, p_3) and Exponents (p_2, q_2) for Polynomial Complex Absorbing Potential (Eq. 14). without wall when the absorbing energy range is from $E_0/2$ to $2E_0$, where E_0 is the reference kinetic energy. The first and second columns contain the absorbing length (L) expressed in terms of reference wavelength (λ_0) and the number of steps (n_s), respectively. The following 5 columns list the optimized values of the coefficients and powers, while the last two columns give the average and maximum values of the survival probability (S), respectively.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	10	-4.996	2.049	50.000	20.089	-4.58×10^{-1}	6.68×10^{-4}	1.62×10^{-3}
1.0	10	-35.193	5.965	-9.930	3.085	-5.05×10^{-2}	3.21×10^{-5}	8.61×10^{-5}
2.0	15	-27.611	6.996	-10.023	4.226	1.40×10^{-3}	2.46×10^{-7}	5.48×10^{-7}
3.0	30	-32.758	7.148	-12.522	4.449	9.91×10^{-5}	2.89×10^{-10}	6.37×10^{-10}
4.0	30	-24.063	7.108	-11.594	4.682	2.19×10^{-5}	2.25×10^{-11}	5.54×10^{-11}
5.0	30	-14.755	6.076	-7.170	4.371	7.64×10^{-6}	6.31×10^{-12}	1.67×10^{-11}

Table II.

Optimized parameters for Polynomial Complex Absorbing Potential with wall when the absorbing energy range is from $E_0/2$ to $2E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	10	-20.171	11.771	-7.896	4.235	-1.44×10^{-1}	9.42×10^{-5}	3.00×10^{-4}
1.0	5	-3.811	3.974	-1.953	2.323	-8.31×10^{-3}	6.24×10^{-6}	1.96×10^{-5}
2.0	20	-11.589	6.728	-6.221	4.174	6.76×10^{-4}	2.94×10^{-8}	1.04×10^{-7}
3.0	25	-12.996	7.216	-6.870	4.542	6.67×10^{-5}	1.40×10^{-10}	4.41×10^{-10}
4.0	30	-12.038	8.217	-6.414	5.129	2.69×10^{-6}	3.35×10^{-12}	1.01×10^{-11}
5.0	30	-6.942	6.934	-3.281	4.526	3.03×10^{-6}	3.55×10^{-13}	1.16×10^{-12}

Table III.

Optimized parameters for Polynomial Complex Absorbing Potential without wall when the absorbing energy range is from $E_0/4$ to $4E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	5	-50.000	11.002	-10.054	4.164	-2.09×10^{-1}	2.74×10^{-3}	7.39×10^{-3}
1.0	10	-39.198	7.228	-9.250	3.538	-6.87×10^{-2}	1.87×10^{-4}	6.24×10^{-4}
2.0	15	-14.144	4.882	-3.921	2.725	-9.55×10^{-3}	4.89×10^{-6}	1.45×10^{-5}
3.0	25	-17.276	6.718	-5.950	4.120	7.21×10^{-4}	1.55×10^{-7}	5.29×10^{-7}
4.0	30	-18.338	7.005	-6.794	4.373	6.34×10^{-5}	9.90×10^{-10}	3.72×10^{-9}
5.0	30	-11.417	5.943	-4.450	3.938	3.67×10^{-5}	1.63×10^{-9}	7.51×10^{-9}

Table IV.

Optimized parameters for Polynomial Complex Absorbing Potential with wall when the absorbing energy range is from $E_0/4$ to $4E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	10	-20.371	12.437	-7.980	4.626	-1.80×10^{-1}	9.16×10^{-4}	3.19×10^{-3}
1.0	10	-11.249	6.661	-4.219	3.263	-4.44×10^{-2}	7.04×10^{-5}	2.55×10^{-4}
2.0	15	-6.064	4.497	-2.406	2.626	-6.29×10^{-3}	1.55×10^{-6}	5.70×10^{-6}
3.0	25	-7.881	6.547	-3.860	4.093	3.58×10^{-4}	2.31×10^{-8}	1.04×10^{-7}
4.0	30	-8.893	7.177	-4.244	4.467	4.72×10^{-5}	1.74×10^{-10}	4.48×10^{-10}
5.0	30	-5.885	6.886	-2.052	3.929	2.83×10^{-5}	3.63×10^{-10}	1.96×10^{-9}

Table V.

Optimized parameters for Polynomial Complex Absorbing Potential without wall when the absorbing energy range is from $E_0/9$ to $9E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	5	-50.000	10.883	-8.909	4.242	-2.59×10^{-1}	9.55×10^{-3}	2.77×10^{-2}
1.0	10	-39.733	10.064	-8.434	4.541	-7.43×10^{-2}	8.70×10^{-4}	2.67×10^{-3}
2.0	20	-16.459	5.927	-3.303	2.992	-1.72×10^{-2}	6.00×10^{-5}	1.86×10^{-4}
3.0	25	-10.938	4.883	-2.324	2.652	-6.18×10^{-3}	7.61×10^{-6}	2.36×10^{-5}
4.0	30	-8.468	4.334	-2.024	2.532	-2.89×10^{-3}	1.41×10^{-6}	4.18×10^{-6}
5.0	25	-0.944	1.355	14.848	11.717	-2.09×10^{-2}	7.34×10^{-5}	2.61×10^{-4}

Table VI.

Optimized parameters for Polynomial Complex Absorbing Potential with wall when the absorbing energy range is from $E_0/9$ to $9E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	10	-24.929	17.340	-11.058	6.422	-2.22×10^{-1}	3.93×10^{-3}	1.39×10^{-2}
1.0	10	-13.114	8.656	-4.687	4.117	-6.30×10^{-2}	5.21×10^{-4}	2.02×10^{-3}
2.0	15	-6.804	5.636	-1.994	2.909	-1.23×10^{-2}	2.60×10^{-5}	1.01×10^{-4}
3.0	25	-5.148	4.569	-1.511	2.565	-4.42×10^{-3}	2.80×10^{-6}	1.09×10^{-5}
4.0	30	-6.699	6.816	-2.337	4.112	5.86×10^{-4}	3.54×10^{-7}	1.54×10^{-6}
5.0	30	-1.657	1.993	-0.159	0.861	2.91×10^{-3}	2.66×10^{-5}	2.23×10^{-4}

Table VII.

Optimized parameters for Polynomial Complex Absorbing Potential without wall when the absorbing energy range is from $E_0/16$ to $16E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	5	-40.485	9.792	-7.053	4.037	-2.97×10^{-1}	2.03×10^{-2}	5.48×10^{-2}
1.0	15	-50.000	12.402	-9.522	5.421	-7.76×10^{-2}	2.24×10^{-3}	6.40×10^{-3}
2.0	20	-20.552	7.261	-3.427	3.503	-2.10×10^{-2}	2.24×10^{-4}	7.31×10^{-4}
3.0	30	-13.414	5.696	-2.163	2.888	-8.81×10^{-3}	4.37×10^{-5}	1.42×10^{-4}
4.0	30	-7.732	4.094	-1.427	2.257	-4.97×10^{-3}	7.54×10^{-5}	5.20×10^{-4}
5.0	30	-4.839	3.283	-0.863	1.859	-2.38×10^{-3}	7.28×10^{-5}	4.36×10^{-4}

Table VIII.

Optimized parameters for Polynomial Complex Absorbing Potential with wall when the absorbing energy range is from $E_0/16$ to $16E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	10	-26.975	26.595	-15.087	8.713	-2.37×10^{-1}	8.16×10^{-3}	2.87×10^{-2}
1.0	15	-21.351	11.126	-6.071	5.021	-6.99×10^{-2}	1.46×10^{-3}	5.67×10^{-3}
2.0	20	-9.151	6.752	-2.150	3.302	-1.71×10^{-2}	1.26×10^{-4}	5.11×10^{-4}
3.0	30	-6.383	5.341	-1.411	2.760	-6.83×10^{-3}	2.08×10^{-5}	8.58×10^{-5}
4.0	25	-3.056	3.308	-0.693	1.863	-3.41×10^{-3}	6.98×10^{-5}	4.31×10^{-4}
5.0	30	-2.276	2.845	-0.467	1.626	-1.51×10^{-3}	3.77×10^{-5}	2.95×10^{-4}

Table IX.

Optimized parameters for Polynomial Complex Absorbing Potential without wall when the absorbing energy range is from $E_0/25$ to $25E_0$. The notations are the same as for Table I.

L/λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	5	-39.051	9.715	-6.881	4.375	-3.38×10^{-1}	3.03×10^{-2}	8.08×10^{-2}
1.0	15	-50.000	13.930	-9.134	5.975	-7.50×10^{-2}	4.50×10^{-3}	1.29×10^{-2}
2.0	25	-26.353	8.594	-3.710	4.009	-2.26×10^{-2}	5.22×10^{-4}	1.74×10^{-3}
3.0	30	-17.598	6.521	-2.294	3.193	-1.07×10^{-2}	1.57×10^{-4}	7.72×10^{-4}
4.0	30	-10.439	5.266	-1.527	2.717	-5.79×10^{-3}	1.07×10^{-4}	5.93×10^{-4}
5.0	30	-7.111	4.332	-1.133	2.351	-3.54×10^{-3}	9.59×10^{-5}	5.13×10^{-4}

Table X.

Optimized parameters for Polynomial Complex Absorbing Potential with wall when the absorbing energy range is from $E_0/25$ to $25E_0$. The notations are the same as for Table I.

L / λ_0	n_s	q_1	q_2	p_1	p_2	p_3	S_{avr}	S_{max}
0.5	15	-50.000	25.669	-18.621	9.113	-2.39×10^{-1}	1.35×10^{-2}	4.86×10^{-2}
1.0	15	-24.660	13.804	-6.823	6.008	-7.10×10^{-2}	2.78×10^{-3}	1.09×10^{-2}
2.0	25	-11.912	8.014	-2.384	3.785	-1.94×10^{-2}	3.31×10^{-4}	1.35×10^{-3}
3.0	30	-9.566	6.156	-1.620	3.050	-9.14×10^{-3}	1.17×10^{-4}	6.36×10^{-4}
4.0	30	-5.159	4.829	-1.033	2.558	-4.84×10^{-3}	6.48×10^{-5}	4.23×10^{-4}
5.0	30	-3.399	3.897	-0.736	2.187	-2.88×10^{-3}	5.21×10^{-5}	3.45×10^{-4}