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Supporting information

Complex Optical Index of PbS Nanocrystal Thin Film and their Use for Short Wave Infrared Sensor Design

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1. Material synthesis

PbS 1000 synthesis: In a three-neck flask, 300 mg of $PbCl_2$ +100µL of TOP and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 80 °C, this solution of S is quickly added to the flask. After 30 s, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The nanocrystals (NCs) are precipitated with ethanol and redispersed in toluene. This washing step is repeated one more time. The solution is then centrifuged to remove the unstable phase. The supernatant is precipitated with methanol and redispersed in toluene. For TEM images and absorption spectroscopy, see Figure S 1a.

PbS 1100 synthesis: In a three-neck flask, 300 mg of $PbCl_2$ +100µL of TOP and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 90 °C, this solution of S is quickly added to the flask. After 1 minute, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The NCs are precipitated with ethanol and redispersed in toluene. This washing step is repeated one more time. The solution is then centrifuged to remove the unstable phase. The supernatant is precipitated with methanol and redispersed in toluene. For TEM images and absorption spectroscopy, see Figure S 1b.

PbS 1200 synthesis: In a three-neck flask, 300 mg of $PbCl_2$ +100µL of TOP and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 90 °C, this solution of S is quickly added to the flask. After 3 minutes, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The NCs are precipitated with ethanol and redispersed in toluene. This washing step is repeated one more time. The solution is then centrifuged to remove the unstable phase. The supernatant is precipitated with methanol and redispersed in toluene. For TEM images and absorption spectroscopy, see Figure S 1c.

PbS 1370 synthesis: In a three-neck flask, 300 mg of $PbCl_2$ and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 110 °C, this solution of S is quickly added to the flask. After 3 minutes, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The NCs are precipitated with ethanol and redispersed in toluene. This washing step is repeated one more time. The solution is then centrifuged to remove the unstable phase. The supernatant is precipitated with methanol and redispersed in toluene. For TEM images and absorption spectroscopy, see Figure S 1d

PbS 1450 Synthesis*:* In a three-neck flask, 300 mg of $PbCl_2$ and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 110°C, this solution of S is quickly added to the flask. After 15 minutes, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The NCs are precipitated with ethanol and redispersed in toluene. This washing step is repeated one more time. The solution is then centrifuged to remove the

unstable phase. The supernatant is precipitated with methanol and redispersed in toluene. For TEM images and absorption spectroscopy, see Figure S 1e

PbS 1550 Synthesis*:* In a three-neck flask, 300 mg of $PbCl_2$ and 7.5 mL of OLA are degassed, first at room temperature and then at 110 °C for 30 min. Meanwhile 30 mg of S powder are mixed with 7.5 mL of OLA until full dissolution and a clear orange solution is obtained. Then under N_2 at 150 °C, this solution of S is quickly added to the flask. After 15 minutes, the reaction is quickly quenched by addition of 1 mL of oleic acid and 9 mL of hexane. The NCs are precipitated with ethanol and redispersed in hexane. Again, the NCs are precipitated with ethanol and redispersed in hexane and a drop of OA. The cleaning is repeated a third time. Finally, the NCs in hexane are then centrifuged to remove the unstable phase. For TEM images and absorption spectroscopy, see Figure S 1f

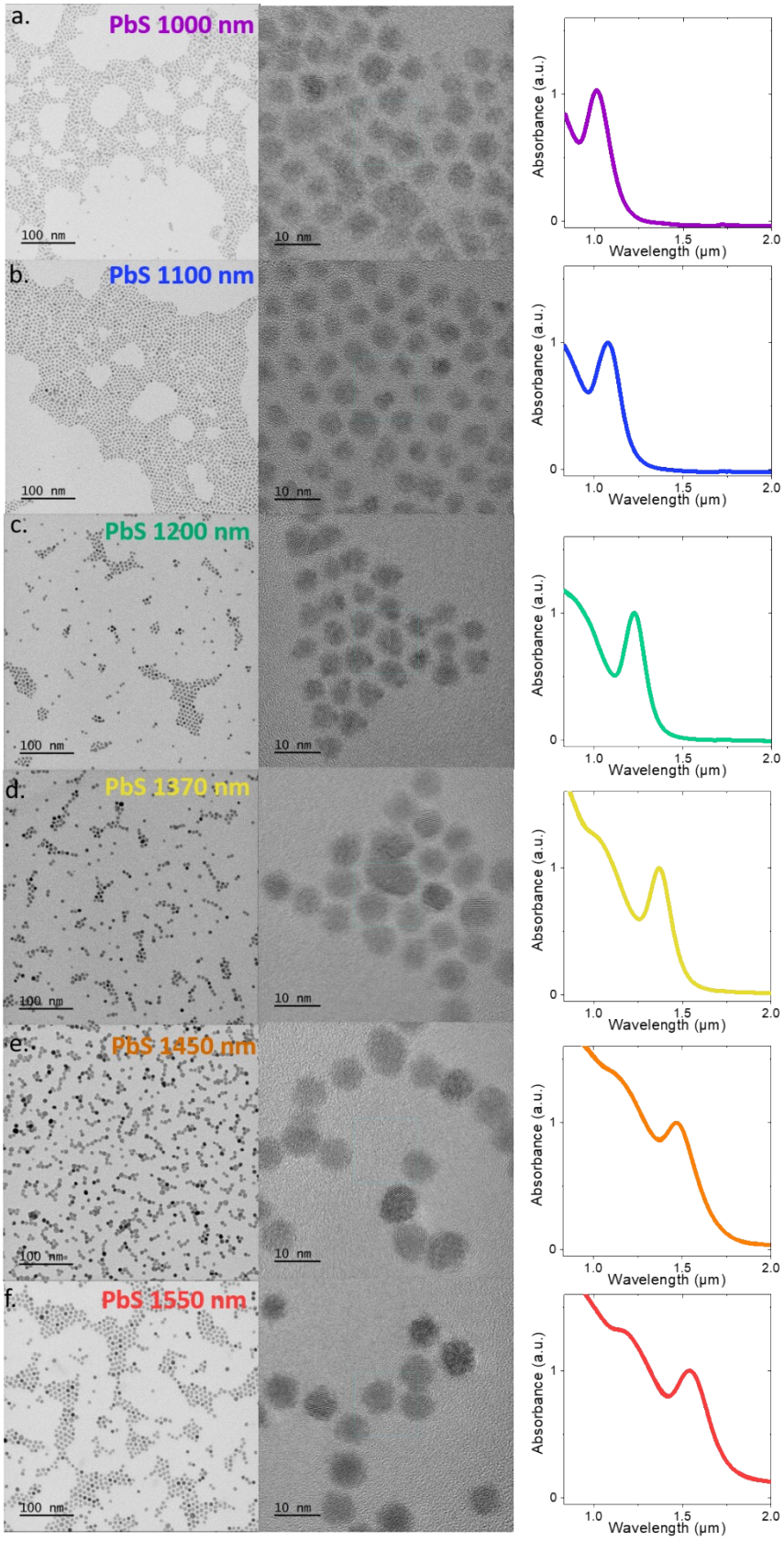

Figure S 1 On the left is a Transmission Electron microscopy (TEM) image of PbS NCs, in the middle is a high resolution TEM image and on the right absorption spectra for a. PbS 1000 nm, b. PbS 1100 nm, c. PbS 1200 nm, d. 1370 nm, e. PbS 1450 nm and f. PbS 1550 nm.

2. Ellipsometry measurements

2.1. Procedure to determine n and k from ellipsometry

The spectroscopic ellipsometry (SE) was performed on a variable angle spectroscopic ellipsometer (V-VASE from J.A. Wollam). The spectral range used was 0.45-2.100 µm. The measurements were performed at 3 angles of incidence: 50, 60 and 70 °.

Ellipsometry measures the change in the polarization state between the incident and the reflected light from a surface. The ellipsometric angles ψ and Δ are obtained from the complex reflectance ratio ρ as[1]:

$$\rho = \frac{(E_r/E_i)_p}{(E/E_i)_s} = \frac{r_p}{r_s} = \left|\frac{r_p}{r_s}\right| e^{i(\delta_p - \delta_s)} = \tan\psi e^{i\Delta}$$

Where r_p and r_s are the complex reflection coefficient of p and s polarized light, respectively, δ_p and δs the phase shifts at reflection for p and s polarizations, respectively.

The measured Ψ and Δ quantities were fitted to a multilayer model to determine the dielectric function of the NCs. The imaginary part of the dielectric function of the NCs (ε_2) was modelled as a linear summation of one Tauc-Lorentz oscillator and four Gaussian oscillators used to describe the absorption features, see Figure S2 (for an example of fit). We have tried different types of oscillators. The Tauc-Lorentz oscillator allowed reproducing very steep absorption edges without introducing residual absorption below the absorption edge, while ensuring the Kramers-Kronig consistency of the optical constants (like the Gaussian oscillators did). It seems to us that the decomposition presented here is the minimal efficient one.

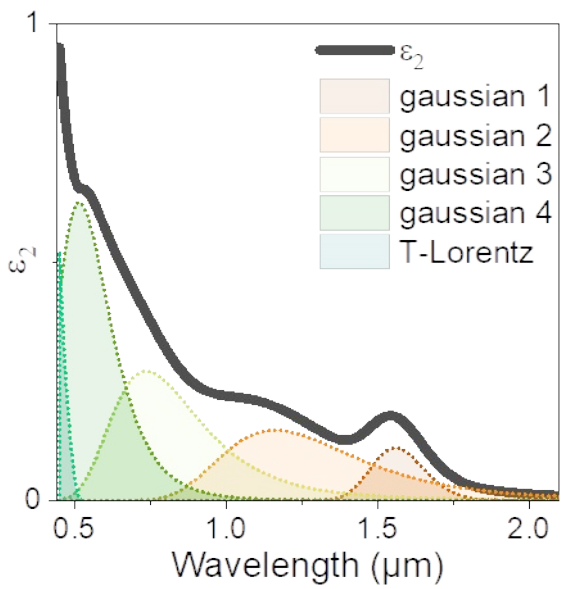

Figure S2 Example of a sum of oscillators used to fit ε_2, in the case of PbS 1550.

Each absorption feature in ε_2 is represented by a corresponding oscillator, whereas the real part ε_1 is calculated using Kramers-Kronig relations. We can derive the values of the optical constants n and k

$$\varepsilon_1 = n^2 - k^2$$

$$\varepsilon_2 = 2nk$$

n is the refractive index and k is the extinction coefficient.

The analysis of the data was performed using the software package WVASE32 to extract the optical constants of the NCs film. The final multilayer model defined here consists in a semi-infinite substrate with the optical constants of borosilicate glass (BK7) and a layer representing the NCs film with the oscillator model described. The thickness measured with the profilometer was used as the starting parameter in the model and was later fine-tuned when adjusting the parameters in the dispersion formula. First the adjustment was performed in the transparent region of the PbS film thus obtaining a reliable estimation of the thickness and the dielectric constant. Then, the fitting region was extended from the transparent region to the entire wavelength region.

The goodness of fit was determined using the unbiased merit function mean-squared error (MSE) which was minimized to best fit the model data (ψ,Δ) with experimental data (ψ,Δ), see Figure S 3.

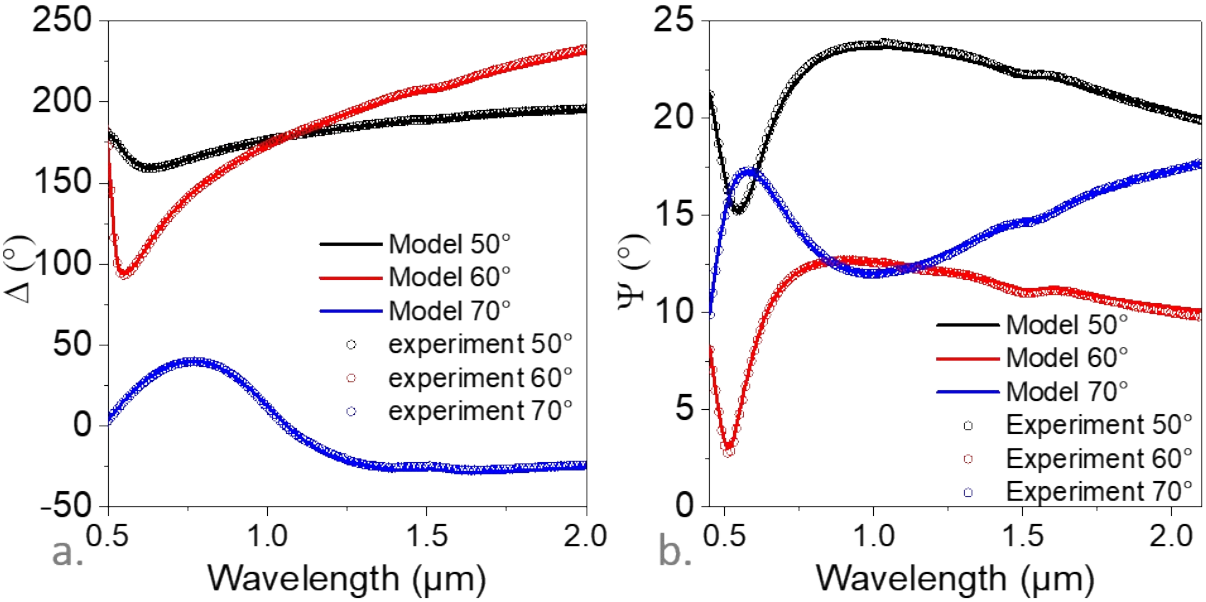

Figure S 3 Measured and fitted ellipsometry angles Δ (a.) and ψ (b.) as a function of the wavelength for three incident angles (50°, 60° and 70°) for the PbS 1550 sample.

2.2. Effect of particle size

For six different particle sizes (PbS 1000, 1100, 12000, 1370, 1450 and 1550 nm), we have measured the spectrally resolved complex optical index, see Figure S 4.

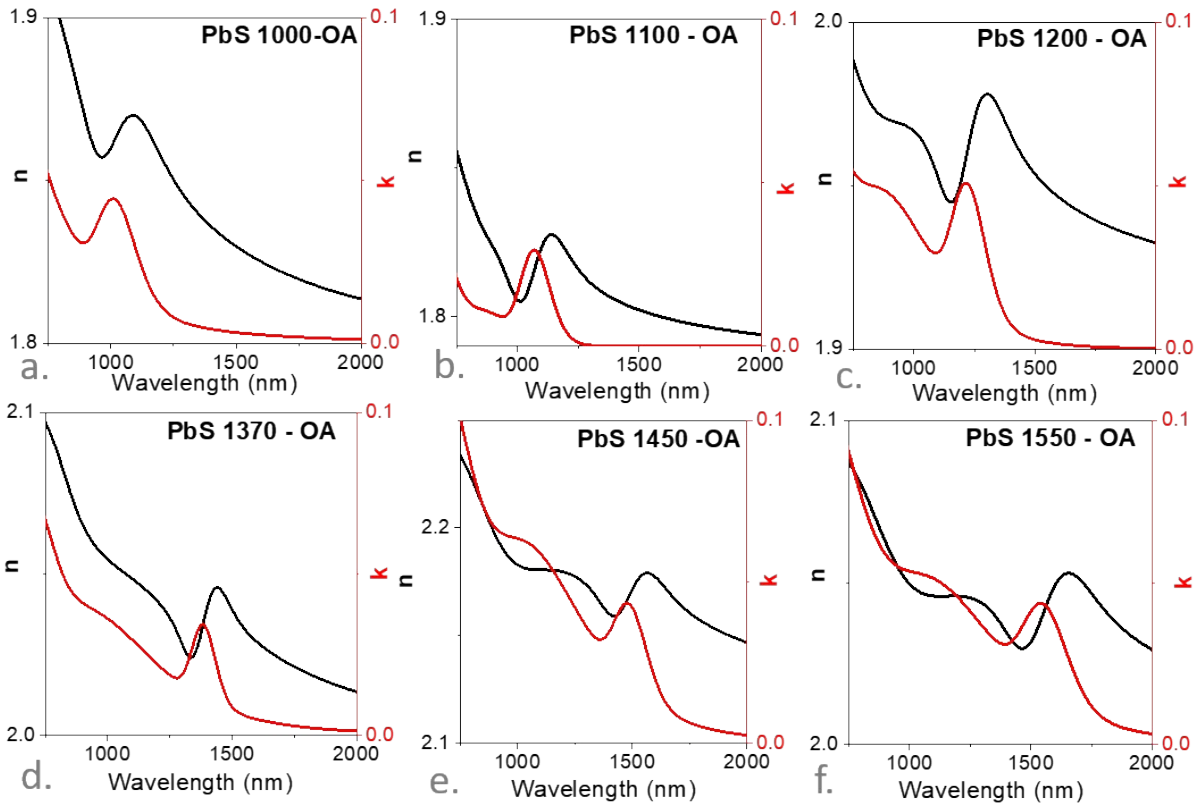

Figure S 4 Refractive index and extinction coefficient spectra for PbS NCs capped with oleic acid : a. for PbS 1000, b. for PbS 1100, c. for PbS 1200, d. for PbS 1370, e for PbS 1450 and f for PbS 1550.

2.3. Effect of surface chemistries

For three relevant particle sizes (1200, 1370 and 1550) we have conducted a ligand exchange from OA capping to EDT and NH_4I, see Figure S 5

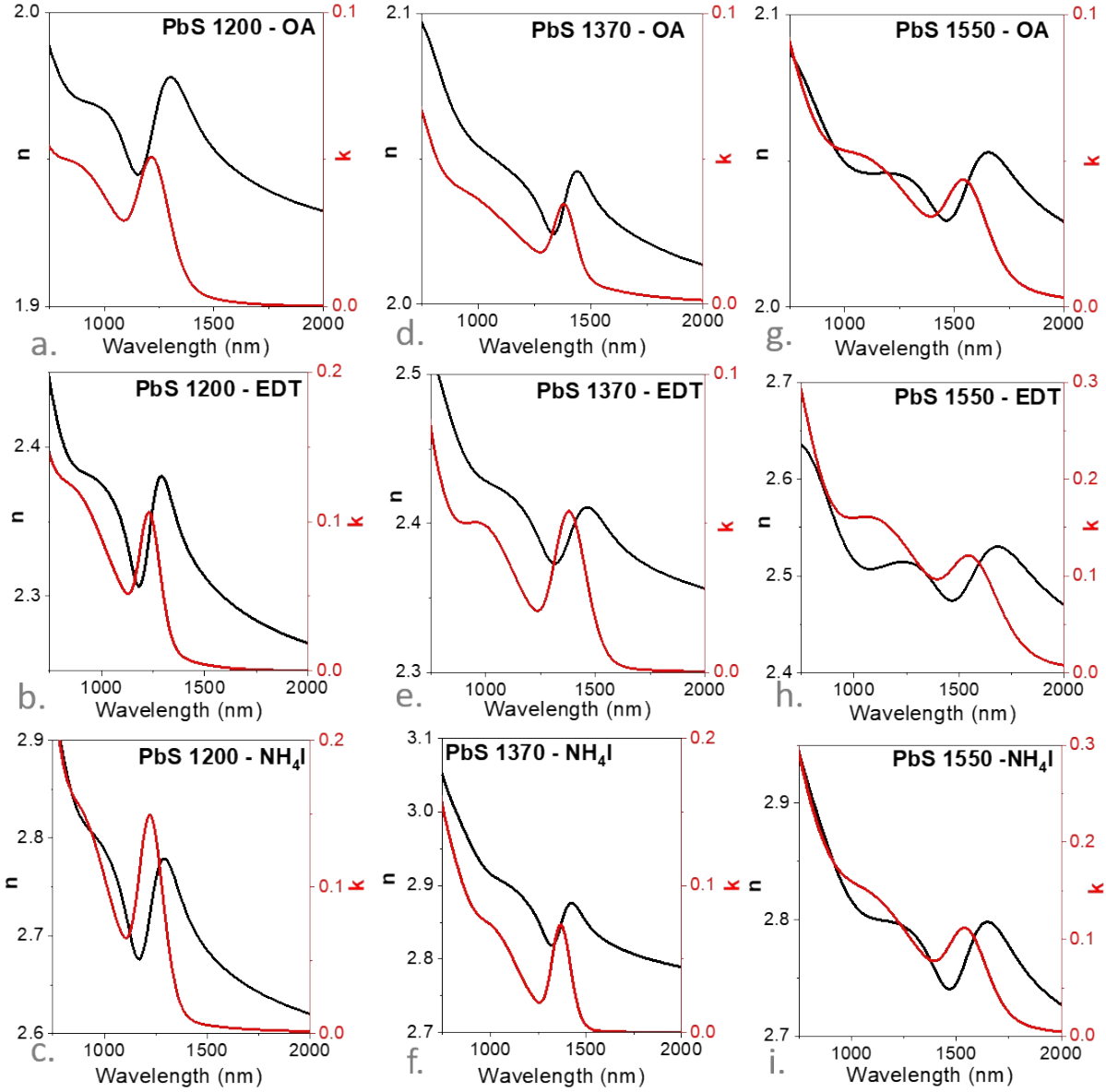

Figure S 5 Refractive index and extinction coefficient spectra for PbS 1200 capped with OA (a.), EDT (b.) and NH_4I (c.). Refractive index and extinction coefficient spectra for PbS 1370 capped with OA (e.), EDT (e.) and NH_4I (f.). Refractive index and extinction coefficient spectra for PbS 1550 capped with OA (g.), EDT (h.) and NH_4I (i.).

3. Electronic structure simulation and modelling of complex index

3.1. Tight-binding simulation

Table S 1 Top: first nearest-neighbour tight-binding (TB) parameters for PbS in $sp^3d^5s^*$ basis. The notation is that of Slater and Koster[2] (a =anion, c=cation). Δ is the spin-orbit coupling parameter.

Tight binding parameters for PbS	
Intra-atomic terms :	
$E_s^a = -13.84167$ eV	$E_s^c = -6.52122$ eV
$E_p^a = -1.16601$ eV	$E_p^c = 3.22618$ eV
$E_d^a = 10.10531$ eV	$E_d^c = 9.01082$ eV
$E_{s^*}^a = 98.98533$ eV	$E_{s^*}^c = 98.98533$ eV
$\Delta^a = 0.02467$ eV	$\Delta^c = 0.51967$ eV
First nearest neighbors interactions :	
$E_{ss\sigma}(ac) = -0.35670$ eV	
$E_{s^*s^*\sigma}(ac) = 0.00000$ eV	
$E_{ss^*\sigma}(ac) = 0.00000$ eV	$E_{ss^*\sigma}(ca) = 0.00000$ eV
$E_{sp\sigma}(ac) = 0.11215$ eV	$E_{sp\sigma}(ca) = 0.93962$ eV
$E_{s^*p\sigma}(ac) = 0.00000$ eV	$E_{s^*p\sigma}(ca) = 0.00000$ eV
$E_{sd\sigma}(ac) = 0.00108$ eV	$E_{sd\sigma}(ca) = 0.02451$ eV
$E_{s^*d\sigma}(ac) = 0.00000$ eV	$E_{s^*d\sigma}(ca) = 0.00000$ eV
$E_{pp\sigma}(ac) = 2.02554$ eV	$E_{pp\pi}(ac) = -0.27864$ eV
$E_{pd\sigma}(ac) = -1.51112$ eV	$E_{pd\sigma}(ca) = -1.14642$ eV
$E_{pd\pi}(ac) = 0.50823$ eV	$E_{pd\pi}(ca) = 1.15990$ eV
$E_{dd\sigma}(ac) = -1.66943$ eV	$E_{dd\pi}(ac) = 0.00206$ eV
$E_{dd\delta}(ac) = 0.65772$ eV	

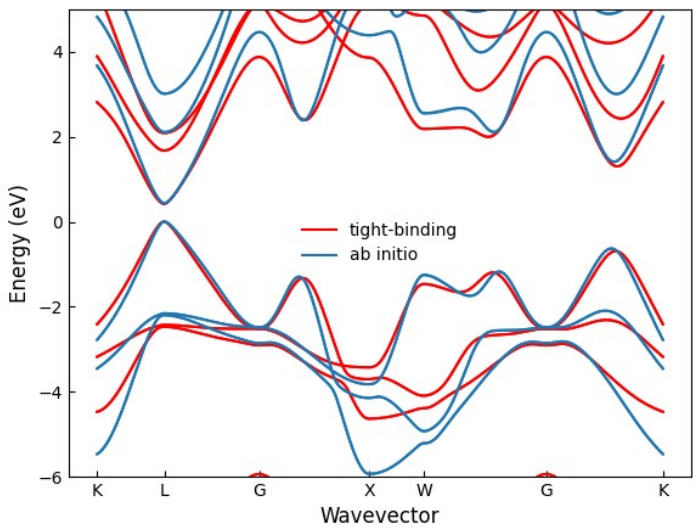

Figure S6 TB and ab initio band structure of bulk PbS, where the zero energy is the top of the valence band. The ab initio calculation has been performed using the Density Functional Theory (DFT) using the Heyd-Scuseria-Ernzerhof functional (HSE) and the Vienna ab initio simulation package (VASP; courtesy of Jing Li and Benoit Sklenard, CEA-LETI, Grenoble).

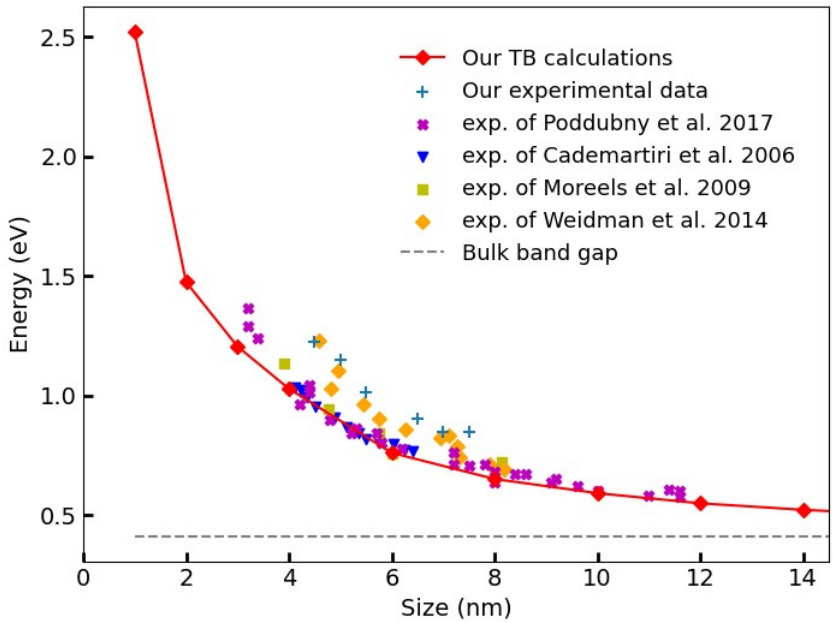

Figure S 7 Dependence between the PbS NCs bandgap and the particle size, calculated by tight-binding (red diamond) and measured in the present work (blue cross). Comparison from other works.[3–6]

We observed in Figure S 7 a constant shift between the TB size and those measured in TEM for a given exciton energy. Insofar, as the TB calculations agree with previous experimental data, we cannot explain the origin of these discrepancies.

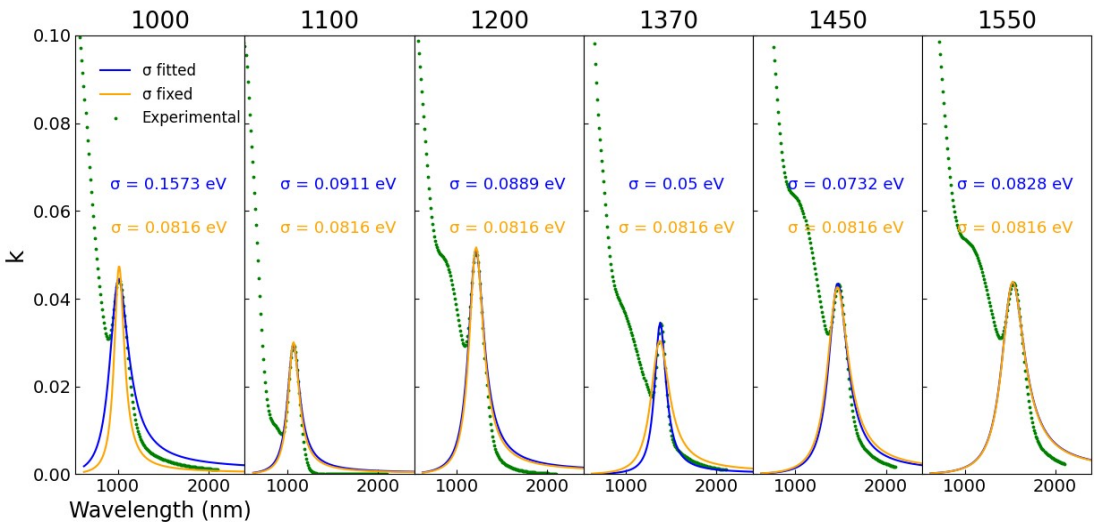

Figure S 8 Fitting the experimental excitonic peak of PbS 1000, 1100, 1200, 1370, 1450, and 1550 capped by oleic acid (green dot) with a Lorentzian at σ fixed (orange) and σ adjusted.

Figure S 8 shows that the broadening is quite similar for different PbS NCs films. Indeed, a Lorentzian for a fixed $\sigma = 0.0816$ eV well describes the exciton peak of the different films. Hence, the parameter

σ from equation 2 of the main document can be fitted once (here on PbS 1200) and transferred to the other films, removing one free parameter.

3.2. Maxwell Garnett vs Bruggeman

The Maxwell Garnett (MG) approximation is not symmetric. It is given by:

$$\frac{\varepsilon - \varepsilon_h}{\varepsilon + 2\varepsilon_h} = f_i \frac{\varepsilon_i - \varepsilon_h}{\varepsilon_i + 2\varepsilon_h}$$

with f_h and f_i the host and inclusion volume fraction; ε_i, ε_h, and ε the complex dielectric functions for the inclusion, the host, and the medium, respectively. The choice of which medium component (NC or ligand) entering the MG formula, either as the host or the inclusion, gives a different complex permittivity for the medium. The only possible distinction between components is based on an inclusion volume fraction much smaller than the host one. Thus, this theory is applicable only for dilute systems. The Bruggeman symmetric formulation is better suited for films where NCs can reach high volume fractions. The symmetry offered by the Bruggeman equation makes it possible to treat the medium components equally and thus overcome the Maxwell Garnett model restricted to dilute system and accessing denser composite mediums.

Both models (Figure S6) give the peaks shapes, positions, and magnitudes in good agreement with ellipsometry. The volume fractions extracted from MG are higher than those from Bruggeman. Even if MG is in accordance with experimental data, the theory is out of its validity limit when the host concentration is in the same order as the inclusion's concentration, as for NH_4I capping.

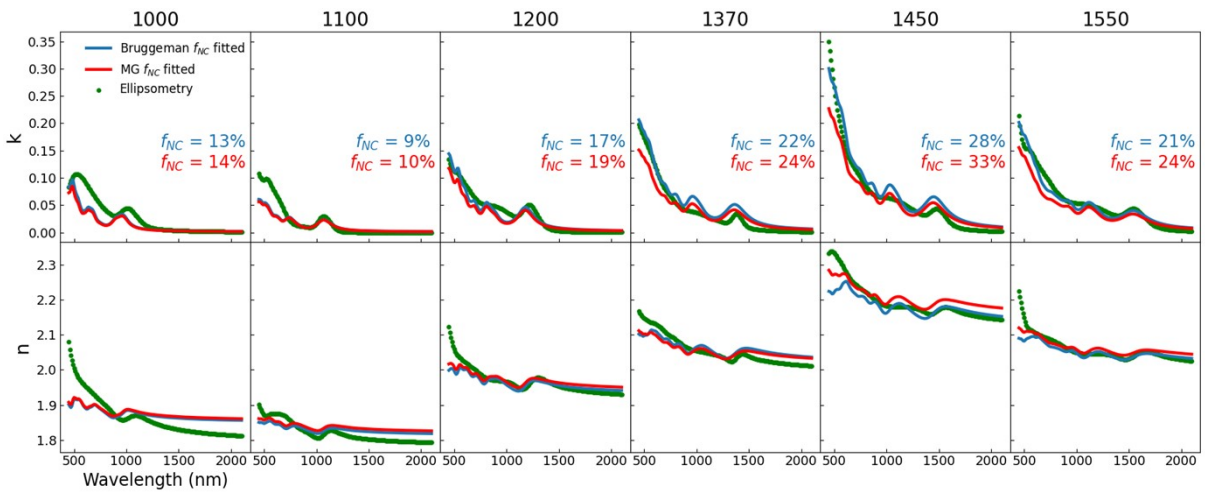

Figure S 9 Effect of particle size. Refractive index (n) and extinction coefficient (k) spectra for PbS 1000, 1100, 1200, 1370, 1450 and 1550 capped with OA. We compared the ellipsometry measurements (green dots), the Bruggeman (blue line) and the Maxwell Garnett (red line) approximations. The NC volume fractions (f_{NC}) obtained in the two approximations are indicated.

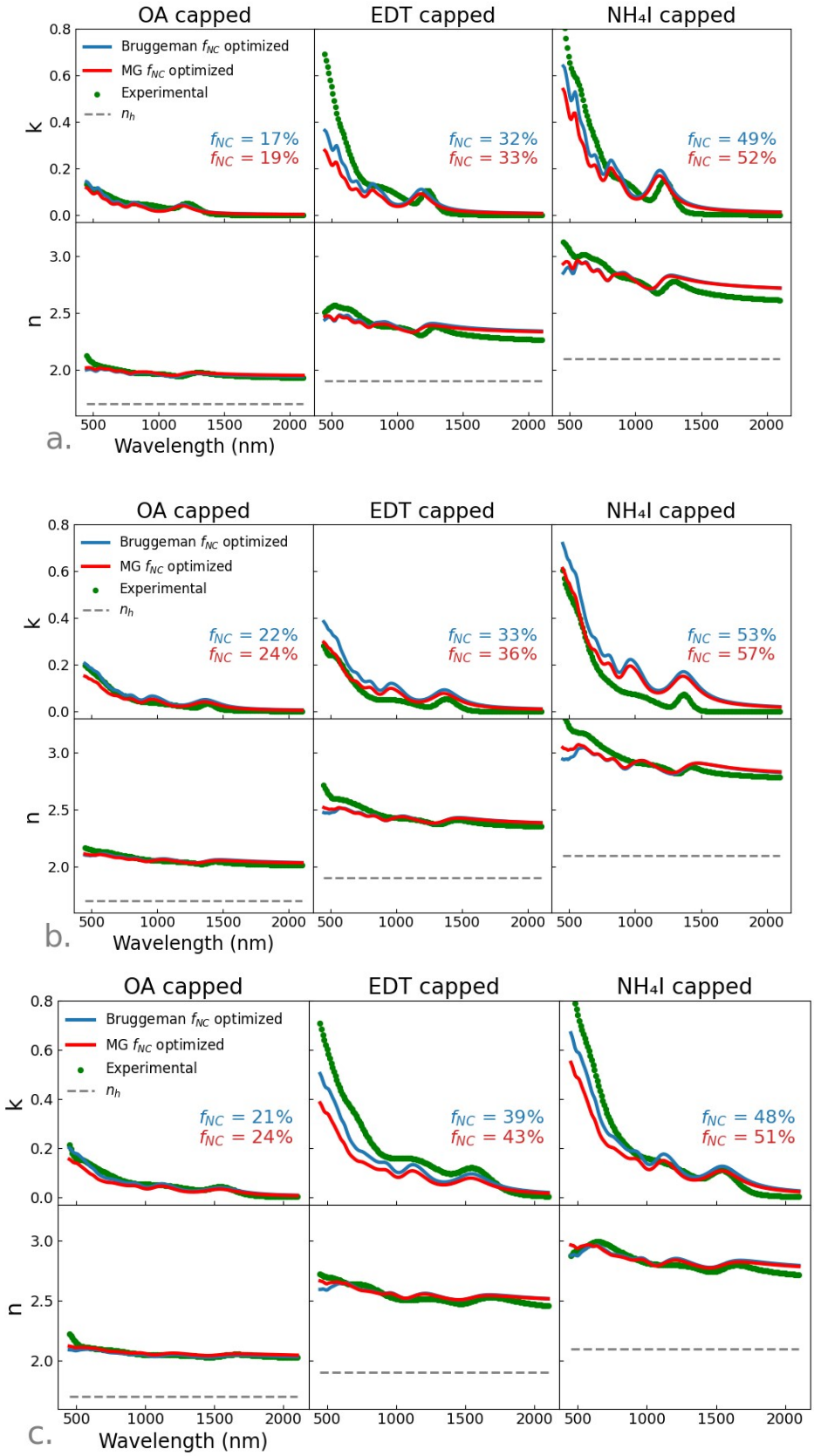

Figure S 10 Effect of surface chemistries. Refractive index (n) and extinction coefficient (k) spectra for PbS 1200 (a.), 1370 (b.) and 1550 (c.) capped with OA, EDT, and NH_4I. We compared the ellipsometry measurements (green dots), the Bruggeman (blue line) and the Maxwell Garnett (red line) approximations. The NC volume fractions (f_{NC}) obtained in the two approximations are indicated.

4. Electromagnetic simulation

4.1. Parameters for simulation

Electromagnetic simulations were implemented using a frequency-domain modal method known as the Rigorous Coupled Wave analysis (RCWA). We use RETICOLO,[7] a code written in MATLAB language. In this study, we have chosen 100 Fourier orders for the calculation.

We have chosen to model relevant stacks for IR sensing. The stack is made of glass/ITO (190 nm)/TiO2(120 nm)/PbS (n type, with NH4I capping and a tunable excitonic peak), PbS (p-type, capped with EDT and a 1200 nm excitonic peak)/Au (80 nm).
The last input needed for these calculations is the complex refractive index of each layer. For the ITO,[8] the TiO_2[9] and the gold[10] we used previously reported refractive index.

Again, it is worth pointing out that the p-type PbS layer is chosen to have a constant excitonic peak while the n type layer has a tunable excitonic peak. Indeed, the thiol capped PbS layer change from np type nature for a large excitonic peak (1200 nm and less) to n type for a wider excitonic peak.

The absorption map is deduced from the electric field at each point:

$$Loss = \frac{\pi}{\lambda}\int_S Im(\varepsilon(M))(|E_y|^2)dS,\ In\ TE\ polarisation$$

$$Loss = \frac{\pi}{\lambda}\int_S Im(\varepsilon(M))(|E_x|^2 + |E_z|^2)dS,\ In\ TM\ polarisation$$

Where S is a surface, $\varepsilon(M)$ is the permittivity at a point $M(x,y,z)$.
In the code the losses are calculated at each point of the map. There is a point every nanometer along the z-axis and a point every two nanometers along the x axis.

4.2. Tuning the relative thickness of n and p type layers in a PbS 1200 diode

One can notice that the spectral dependence of the refractive index is much weaker that in the case of the extinction coefficient. In Figure S 11, we address an important question which is whether the spectral dependence of the refractive index is a mandatory information to achieve accurate modelling. Conducting spectrally resolved measurement is experimentally challenging and sometimes unavailable at the laboratory level in the SWIR range. This explains why we have conducted absorption simulations for a diode at 1200, 1370 and 1550 nm when the full spectral dependence of the refractive index is considered and when it is replaced by its average value. For these three diodes, we have chosen a thickness which corresponds to a spectral overlap of a resonance with the exciton energy. We observe that overall modelling is only little affected by this approximation and in particular the properties close to the excitonic peak remains well reproduced.

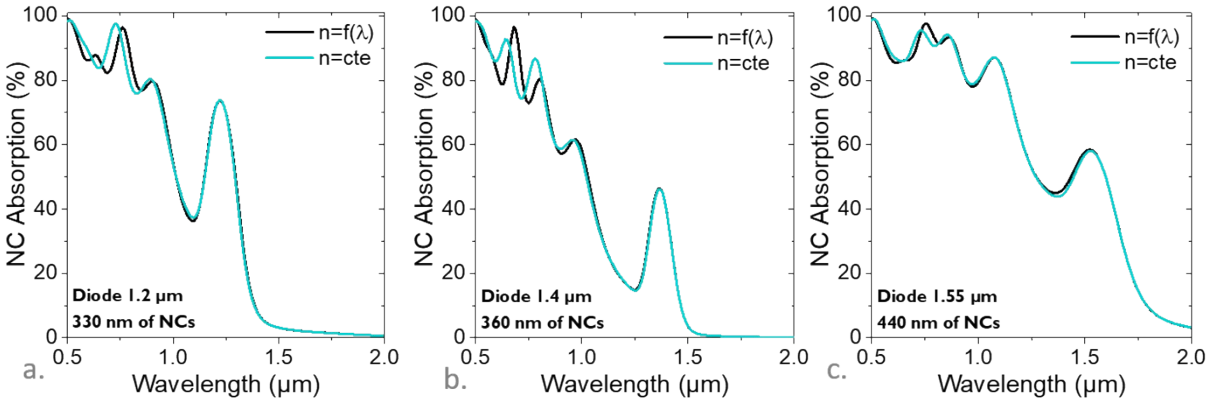

Figure S 11a. Absorption spectra within the NCs for a diode made of PbS 1200 for a spectrally dependant refractive index and for a refractive index averaged over the same spectral range. b. Absorption spectra within the NCs for a diode made of PbS 1370 for a spectrally dependant refractive index and for a refractive index averaged over the same spectral range. c. Absorption spectra within the NCs for a diode made of PbS for a spectrally dependant refractive index and for a refractive index averaged over the same spectral range.

4.3. Tuning the relative thickness of n and p type layers in PbS 1200 diode

In Figure S 12, we follow the absorption at the exciton as a function of the thicknesses of the thiol and I^- capped layers. We see that the resonance lines (yellow lines) follow exactly the iso thickness lines, meaning that the resonances are driven by the total thickness.

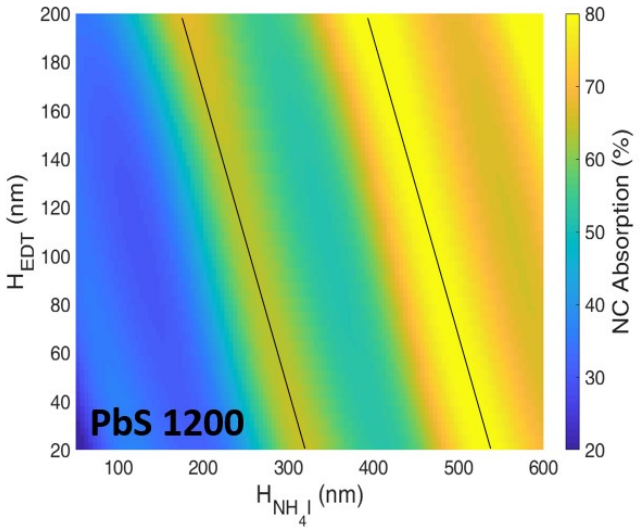

Figure S 12 Absorption within the NCs at the exciton for a diode made of PbS 1200 as a function of the thicknesses of the NH_4I capped PbS layer and the EDT capped PbS layer. The black lines are iso thickness lines.

4.4. Absorption with PbS 1370 diode sample

In Figure 6 of the main text, we show the absorption properties of a diode made of PbS 1200. Here, we expand this result to PbS 1370 (Figure S 13) and PbS 1550 (Figure S 14). Note that the diode stack is the same, except that the excitonic peak of the n type layer is tuned while keeping Iodide as a capping agent. Again, the p type layer remains made of PbS 1200 capped with EDT.

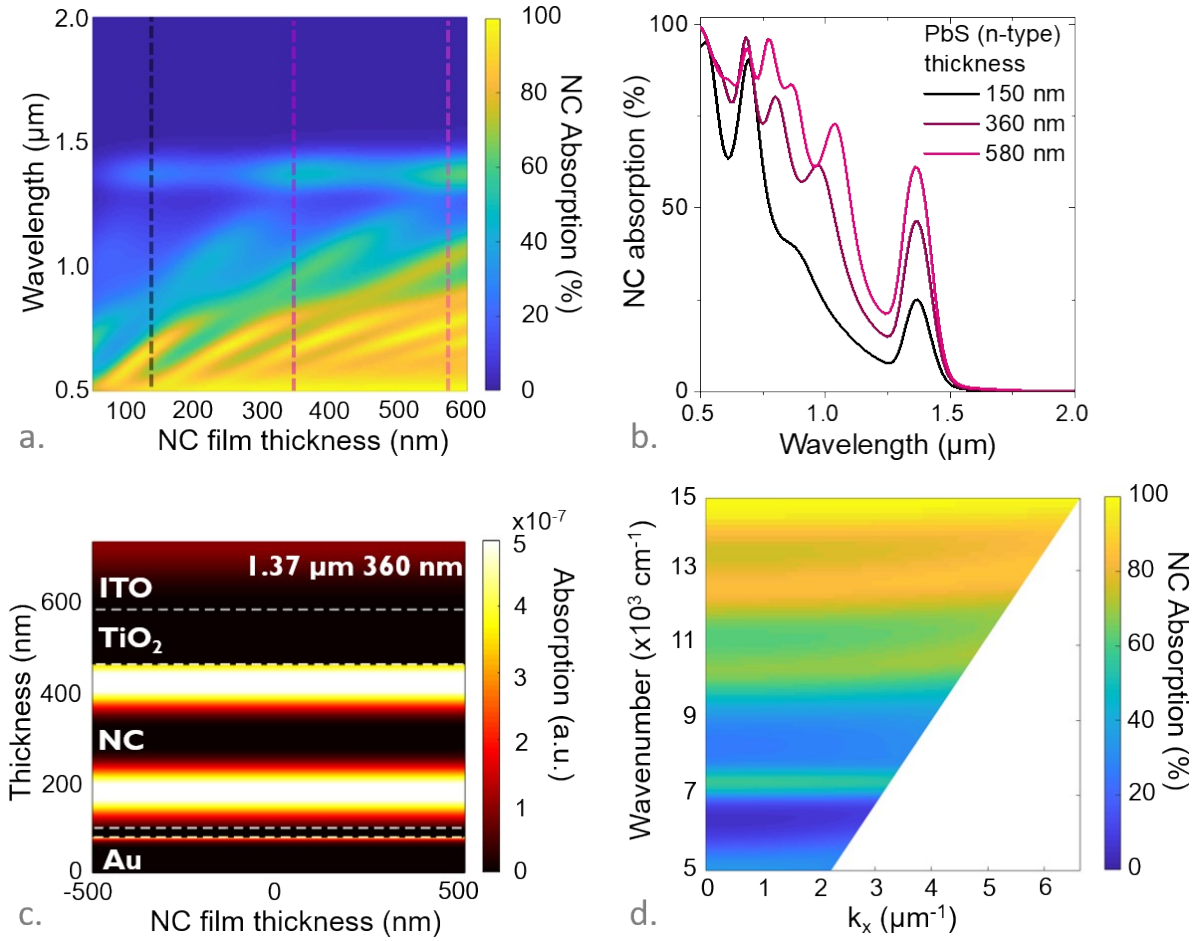

Figure S 13a. Absorption within the NCs for a diode made of PbS 1370 as a function of the wavelength and thickness of the n-type NH_4I capped PbS layer. b. Absorption spectra within the NCs for a diode made of PbS 1370 for two thicknesses of the n-type NH_4I capped PbS layer. c. Absorption spatial map for a diode made of PbS 1370. d. Dispersion relation (wavenumber as a function of k_x wavevector) for a diode made of PbS 1370. Exciton appears around 7000 cm^{-1}.

4.5. Absorption with PbS 1550 diode sample

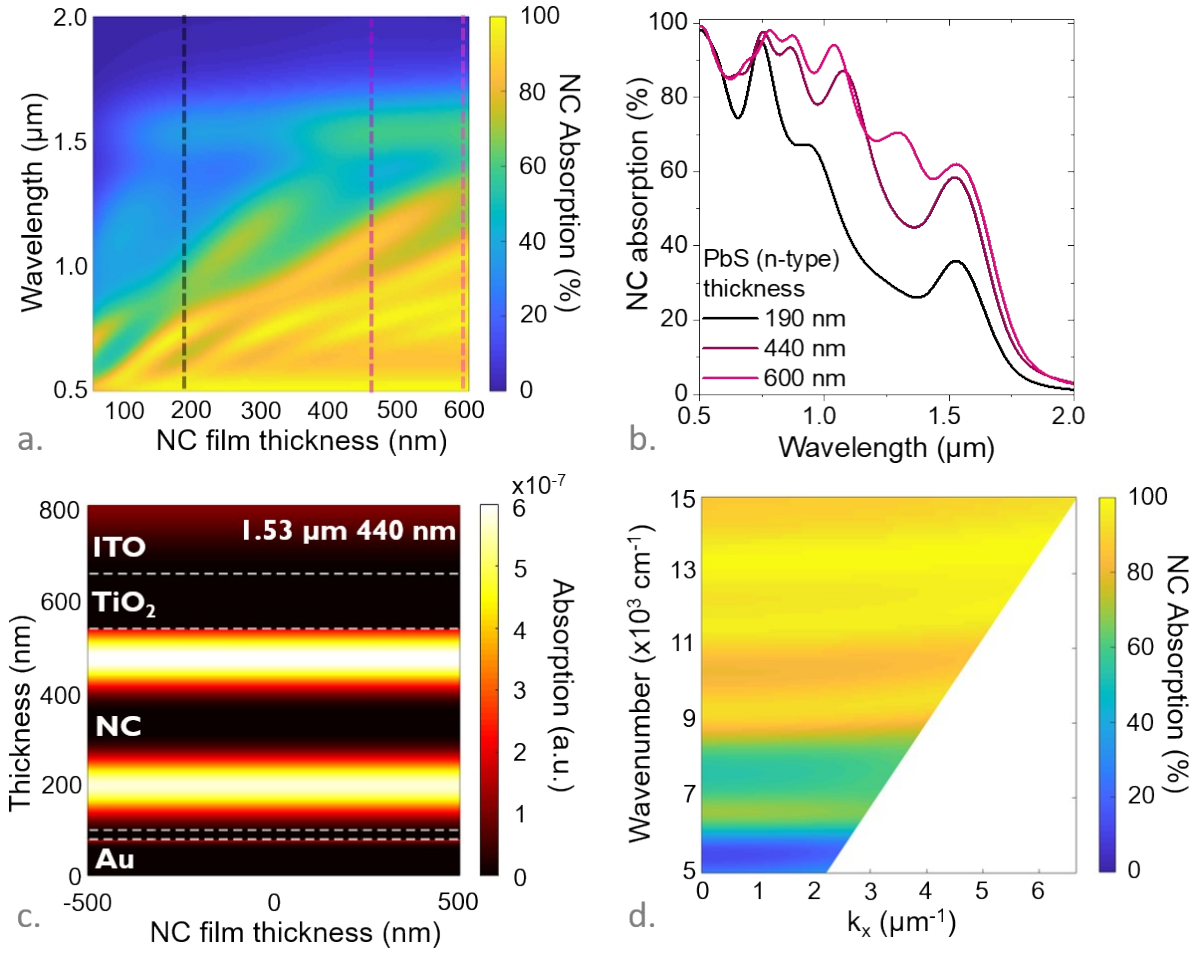

Figure S 14a. Absorption within the NCs for a diode made of PbS 1550 as a function of the wavelength and thickness of the n-type NH_4I capped PbS layer. b. Absorption spectra within the NCs for a diode made of PbS 1550 for two thicknesses of the n-type NH_4I capped PbS layer. c. Absorption spatial map for a diode made of PbS 1550. d. Dispersion relation (wavenumber as a function of k_x wavevector) for a diode made of PbS 1550. Exciton appears around 6400 cm^{-1}.

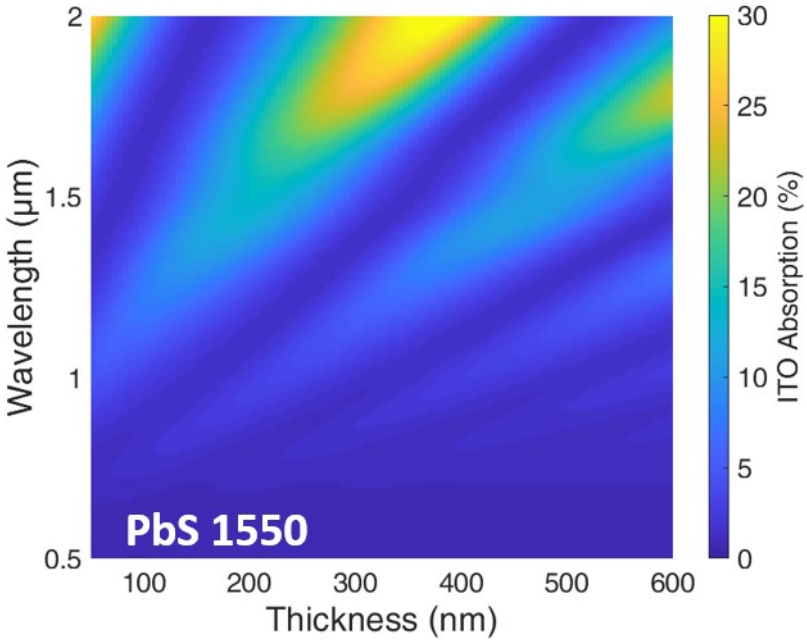

Figure S 15 . Absorption within the ITO for a diode made of PbS 1550 as a function of the wavelength and thickness of the n-type NH_4I capped PbS layer.

5. REFERENCES

(1) Fujiwara, H.; Collins, R. W. Spectroscopic Ellipsometry for Photovoltaics Volume 1: Fundamental Principles and Solar Cell Characterization. *Springer, Cham* **2018**.

(2) Koster, S. Simplified LCAO Method for the periodic potential problem. 1954.

(3) Poddubny, A. N.; Litvyak, V. M.; Nestoklon, M. O.; Cherbunin, R. V.; Golubkov, V. V.; Onushchenko, P. A.; Babkina, A. N.; Onushchenko, A. A.; Goupalov, S. V. Role of Valley Anisotropy in Optical Absorption of Monodisperse PbS Nanocrystals. *J. Phys. Chem. C* **2017**, *121*, 27766–27773.

(4) Weidman, M. C.; Beck, M. E.; Hoffman, R. S.; Prins, F.; Tisdale, W. A. Monodisperse, air-stable PbS nanocrystals via precursor stoichiometry control. *ACS Nano* **2014**, *8*, 6363–6371.

(5) Cademartiri, L.; Montanari, E.; Calestani, G.; Migliori, A.; Guagliardi, A.; Ozin, G. A. Size-dependent extinction coefficients of PbS quantum dots. *J. Am. Chem. Soc.* **2006**, *128*, 10337–10346.

(6) Moreels, I.; Lambert, K.; Smeets, D.; De Muynck, D.; Nollet, T.; Martins, J. C.; Vanhaecke, F.; Vantomme, A.; Delerue, C.; Allan, G.; Hens, Z. Size-dependent optical properties of colloidal PbS quantum dots. *ACS Nano* **2009**, *3*, 3023–3030.

(7) Hugonin, J.-P.; Lalanne, P. Reticolo software for grating analysis. 2005.

(8) Holman, Z. C.; Filipic, M.; Descoeudres, A.; De Wolf, S.; Smole, F.; Topic, M.; Ballif, C. Infrared light management in high-efficiency silicon heterojunction and rear-passivated solar cells. *J. Appl. Phys.* **2013**, *113*, 013107.

(9) Ratzsch, S.; Kley, E.-B.; Tuennermann, A.; Szeghalmi, A. Influence of the oxygen plasma parameters on the atomic layer deposition of titanium dioxide. *Nanotechnology* **2015**, *26*, 024003.

(10) Olmon, R. L.; Slovick, B.; Johnson, T. W.; Shelton, D.; Oh, S.-H.; Boreman, G. D.; Raschke, M. B. Optical dielectric function of gold. *Phys. Rev. B* **2012**, *86*, 235147.

6. Experimental data for the complex optical index

Ellipsometry measurement data (n,k) versus wavelength (nm) (Column 1 in wavelength in nm, column 2 is *n* column 3 is *k*) for the materials studied in the present work, see Figure S 4 and Figure S 5.

6.1. PbS 1000 - OA capping

450	2.08016	0.08326
460	2.05879	0.08939
470	2.04123	0.09461
480	2.02678	0.0989
490	2.01485	0.10224
500	2.00495	0.10467
510	1.99667	0.10625
520	1.98968	0.10704
530	1.9837	0.10711
540	1.97852	0.10655
550	1.97394	0.10545
560	1.96984	0.10387
570	1.96608	0.10191
580	1.96259	0.09962
590	1.95929	0.09707
600	1.95613	0.09433
610	1.95306	0.09143
620	1.95006	0.08844
630	1.94711	0.08537
640	1.94418	0.08228
650	1.94127	0.07918
660	1.93837	0.0761
670	1.93548	0.07306
680	1.93259	0.07008
690	1.92971	0.06716
700	1.92683	0.06431
710	1.92396	0.06155
720	1.92109	0.05888
730	1.91824	0.05631
740	1.91539	0.05383
750	1.91255	0.05144
760	1.90972	0.04916
770	1.9069	0.04697
780	1.90408	0.04488
790	1.90127	0.04288
800	1.89844	0.04098
810	1.89559	0.03918
820	1.89271	0.03748
830	1.88979	0.03591
840	1.8868	0.03449
850	1.88376	0.03323
860	1.88065	0.0322
870	1.87749	0.03142
880	1.87431	0.03095
890	1.87117	0.03084
900	1.86813	0.03111
910	1.86529	0.03178
920	1.86275	0.03283
930	1.8606	0.03421
940	1.85893	0.03585
950	1.8578	0.03763
960	1.85725	0.03942
970	1.85726	0.04111
980	1.85779	0.04255
990	1.85877	0.04364
1000	1.8601	0.0443
1010	1.86165	0.04447
1020	1.86331	0.04414
1030	1.86495	0.04331
1040	1.86647	0.04203
1050	1.86779	0.04036
1060	1.86883	0.03837
1070	1.86956	0.03615
1080	1.86996	0.03377
1090	1.87002	0.03133
1100	1.86977	0.02887
1110	1.86923	0.02648
1120	1.86843	0.02417
1130	1.86742	0.02201
1140	1.86623	0.02
1150	1.8649	0.01816
1160	1.86348	0.0165
1170	1.86199	0.01501
1180	1.86047	0.01368
1190	1.85893	0.01252
1200	1.85741	0.01149
1210	1.85591	0.0106
1220	1.85444	0.00982
1230	1.85302	0.00914
1240	1.85165	0.00855
1250	1.85033	0.00803
1260	1.84906	0.00758
1270	1.84785	0.00718
1280	1.84668	0.00683
1290	1.84557	0.00652
1300	1.84451	0.00624
1310	1.84349	0.00599
1320	1.84251	0.00576
1330	1.84157	0.00555
1340	1.84068	0.00536
1350	1.83981	0.00518
1360	1.83898	0.00502
1370	1.83818	0.00486
1380	1.83741	0.00472

1390	1.83666	0.00458
1400	1.83594	0.00445
1410	1.83524	0.00432
1420	1.83457	0.00421
1430	1.83392	0.00409
1440	1.83328	0.00398
1450	1.83266	0.00388
1460	1.83206	0.00378
1470	1.83148	0.00368
1480	1.83092	0.00359
1490	1.83036	0.0035
1500	1.82983	0.00341
1510	1.8293	0.00333
1520	1.82879	0.00325
1530	1.8283	0.00317
1540	1.82781	0.0031
1550	1.82734	0.00302
1560	1.82688	0.00295
1570	1.82642	0.00288
1580	1.82598	0.00282
1590	1.82555	0.00275
1600	1.82513	0.00269
1610	1.82472	0.00263
1620	1.82432	0.00258
1630	1.82392	0.00252
1640	1.82354	0.00247
1650	1.82316	0.00241
1660	1.82279	0.00236
1670	1.82243	0.00231
1680	1.82207	0.00226
1690	1.82172	0.00222
1700	1.82138	0.00217
1710	1.82105	0.00213
1720	1.82072	0.00209
1730	1.8204	0.00204
1740	1.82009	0.002
1750	1.81978	0.00196
1760	1.81948	0.00193
1770	1.81919	0.00189
1780	1.81889	0.00185
1790	1.81861	0.00182
1800	1.81833	0.00178
1810	1.81806	0.00175
1820	1.81779	0.00172
1830	1.81752	0.00169
1840	1.81726	0.00166
1850	1.81701	0.00163
1860	1.81676	0.0016
1870	1.81651	0.00157
1880	1.81627	0.00154
1890	1.81603	0.00152
1900	1.8158	0.00149
1910	1.81557	0.00146
1920	1.81534	0.00144
1930	1.81512	0.00142
1940	1.81491	0.00139
1950	1.81469	0.00137
1960	1.81448	0.00135
1970	1.81427	0.00133
1980	1.81407	0.0013
1990	1.81387	0.00128
2000	1.81367	0.00126
2010	1.81348	0.00124
2020	1.81329	0.00122
2030	1.8131	0.00121
2040	1.81292	0.00119
2050	1.81274	0.00117
2060	1.81256	0.00115
2070	1.81238	0.00113
2080	1.81221	0.00112
2090	1.81204	0.0011
2100	1.81187	0.00108

6.2. PbS 1100 - OA capping

450	1.90124	0.10786
460	1.89342	0.10298
470	1.88634	0.09956
480	1.8801	0.09742
490	1.87481	0.09648
500	1.87073	0.0967
510	1.86865	0.09798
520	1.86896	0.09843
530	1.87017	0.09755
540	1.87163	0.09559
550	1.87299	0.0928
560	1.87406	0.08946
570	1.87474	0.08581
580	1.87507	0.08205
590	1.87513	0.07832
600	1.87501	0.0747
610	1.87483	0.07117
620	1.87465	0.06768
630	1.87449	0.06416
640	1.8743	0.06053
650	1.87403	0.05675
660	1.87357	0.05281
670	1.87285	0.04875
680	1.8718	0.04464
690	1.87039	0.04056
700	1.86862	0.0366
710	1.8665	0.03285
720	1.8641	0.02937
730	1.86146	0.0262
740	1.85866	0.02339
750	1.85575	0.02094
760	1.85281	0.01885
770	1.84988	0.0171
780	1.84702	0.01567
790	1.84426	0.01453
800	1.84164	0.01364
810	1.83918	0.01295
820	1.83689	0.01243
830	1.83478	0.01204
840	1.83283	0.01172
850	1.83104	0.01146
860	1.82937	0.01121
870	1.82781	0.01096
880	1.82631	0.01068
890	1.82484	0.01038
900	1.82336	0.01005
910	1.82182	0.00972
920	1.82019	0.00943
930	1.81843	0.00921
940	1.81652	0.00917
950	1.81449	0.00937
960	1.81239	0.00991
970	1.81031	0.01088
980	1.80837	0.01232
990	1.80676	0.01424
1000	1.80563	0.01656
1010	1.80512	0.01916
1020	1.80535	0.02185
1030	1.80634	0.02442
1040	1.80804	0.02663
1050	1.81033	0.0283
1060	1.81302	0.02929
1070	1.81591	0.02952
1080	1.81878	0.02898
1090	1.82142	0.02776
1100	1.82369	0.02595
1110	1.82548	0.02372
1120	1.82672	0.02121
1130	1.82743	0.01858
1140	1.82762	0.01597
1150	1.82737	0.01347
1160	1.82675	0.01118
1170	1.82584	0.00913
1180	1.82472	0.00734
1190	1.82348	0.00583
1200	1.82217	0.00457
1210	1.82084	0.00355
1220	1.81953	0.00273
1230	1.81826	0.00209
1240	1.81706	0.00159
1250	1.81593	0.0012
1260	1.81487	9.12783E-4
1270	1.81389	6.95293E-4
1280	1.81298	5.33404E-4
1290	1.81214	4.13583E-4
1300	1.81136	3.25195E-4
1310	1.81063	2.60044E-4
1320	1.80995	2.11912E-4
1330	1.80931	1.76156E-4
1340	1.80872	1.49351E-4
1350	1.80816	1.28998E-4
1360	1.80763	1.13294E-4
1370	1.80713	1.00946E-4
1380	1.80665	9.10316E-5
1390	1.8062	8.28994E-5
1400	1.80576	7.6087E-5
1410	1.80535	7.02678E-5
1420	1.80495	6.521E-5
1430	1.80457	6.07482E-5
1440	1.8042	5.67634E-5

1450	1.80385	5.31689E-5
1460	1.80351	4.99005E-5
1470	1.80318	4.69098E-5
1480	1.80287	4.41594E-5
1490	1.80256	4.16201E-5
1500	1.80226	3.92681E-5
1510	1.80198	3.7084E-5
1520	1.8017	3.50515E-5
1530	1.80143	3.31568E-5
1540	1.80117	3.13878E-5
1550	1.80091	2.9734E-5
1560	1.80067	2.81861E-5
1570	1.80042	2.67356E-5
1580	1.80019	2.53753E-5
1590	1.79996	2.40984E-5
1600	1.79974	2.28986E-5
1610	1.79953	2.17706E-5
1620	1.79932	2.07092E-5
1630	1.79911	1.97098E-5
1640	1.79891	1.87682E-5
1650	1.79872	1.78804E-5
1660	1.79853	1.70428E-5
1670	1.79834	1.62522E-5
1680	1.79816	1.55055E-5
1690	1.79798	1.47998E-5
1700	1.79781	1.41325E-5
1710	1.79764	1.35012E-5
1720	1.79748	1.29037E-5
1730	1.79731	1.23379E-5
1740	1.79716	1.18018E-5
1750	1.797	1.12936E-5
1760	1.79685	1.08117E-5
1770	1.7967	1.03545E-5
1780	1.79656	9.92046E-6
1790	1.79642	9.50831E-6
1800	1.79628	9.11675E-6
1810	1.79614	8.74459E-6
1820	1.79601	8.39074E-6
1830	1.79588	8.05414E-6
1840	1.79575	7.73383E-6
1850	1.79562	7.4289E-6
1860	1.7955	7.13849E-6
1870	1.79538	6.86182E-6
1880	1.79526	6.59812E-6
1890	1.79514	6.34669E-6
1900	1.79503	6.10688E-6
1910	1.79492	5.87806E-6
1920	1.79481	5.65966E-6
1930	1.7947	5.45111E-6
1940	1.79459	5.25192E-6
1950	1.79449	5.06159E-6
1960	1.79439	4.87966E-6
1970	1.79429	4.70571E-6
1980	1.79419	4.53932E-6
1990	1.79409	4.38013E-6
2000	1.794	4.22776E-6
2010	1.7939	4.08188E-6
2020	1.79381	3.94217E-6
2030	1.79372	3.80832E-6
2040	1.79363	3.68005E-6
2050	1.79355	3.55709E-6
2060	1.79346	3.43918E-6
2070	1.79338	3.32607E-6
2080	1.79329	3.21755E-6
2090	1.79321	3.1134E-6
2100	1.79313	3.0134E-6

6.3. PbS 1200 – EDT capping

450	2.5105	0.69297
460	2.52041	0.66511
470	2.53079	0.63793
480	2.54118	0.61046
490	2.55081	0.58218
500	2.55882	0.55303
510	2.56448	0.52339
520	2.5673	0.49394
530	2.56715	0.46551
540	2.56423	0.43903
550	2.55915	0.41536
560	2.55293	0.39524
570	2.54741	0.3792
580	2.54587	0.36482
590	2.54559	0.34867
600	2.54494	0.33154
610	2.54343	0.31396
620	2.54087	0.29634
630	2.53721	0.27901
640	2.53249	0.26221
650	2.52677	0.24613
660	2.52016	0.23092
670	2.51278	0.21672
680	2.50477	0.2036
690	2.49626	0.19163
700	2.4874	0.18085
710	2.47835	0.17128
720	2.46925	0.16289
730	2.46025	0.15565
740	2.45149	0.1495
750	2.44307	0.14437
760	2.4351	0.14015
770	2.42767	0.13674
780	2.42084	0.13402
790	2.41465	0.13188
800	2.40912	0.13018
810	2.40425	0.12882
820	2.40002	0.12769
830	2.39641	0.12668
840	2.39337	0.12571
850	2.39085	0.12471
860	2.38878	0.1236
870	2.3871	0.12235
880	2.38575	0.12091
890	2.38466	0.11927
900	2.38377	0.1174
910	2.38302	0.11531
920	2.38235	0.113
930	2.38172	0.11047
940	2.38107	0.10776
950	2.38038	0.10486
960	2.37961	0.10181
970	2.37873	0.09863
980	2.37772	0.09535
990	2.37655	0.09198
1000	2.37522	0.08856
1010	2.3737	0.0851
1020	2.37198	0.08163
1030	2.37006	0.07817
1040	2.36791	0.07473
1050	2.36551	0.07134
1060	2.36285	0.06801
1070	2.35989	0.06476
1080	2.35656	0.06163
1090	2.3528	0.05867
1100	2.34853	0.05598
1110	2.34365	0.05374
1120	2.33812	0.05218
1130	2.33198	0.05166
1140	2.32543	0.05257
1150	2.31889	0.05527
1160	2.31299	0.06001
1170	2.30856	0.06675
1180	2.30642	0.07506
1190	2.30724	0.08416
1200	2.31135	0.09294
1210	2.31855	0.10023
1220	2.32821	0.10496
1230	2.33928	0.10647
1240	2.35058	0.1045
1250	2.36099	0.09932
1260	2.36959	0.09153
1270	2.37583	0.08196
1280	2.37949	0.07149
1290	2.38068	0.06095
1300	2.3797	0.05097
1310	2.37703	0.04201
1320	2.37314	0.0343
1330	2.36852	0.02792
1340	2.36354	0.02278
1350	2.35852	0.01876
1360	2.35364	0.01567
1370	2.34904	0.01332
1380	2.34478	0.01153
1390	2.34087	0.01017
1400	2.33729	0.00911
1410	2.33402	0.00827
1420	2.33102	0.00758
1430	2.32826	0.007
1440	2.3257	0.0065

1450	2.32331	0.00606
1460	2.32106	0.00566
1470	2.31895	0.00529
1480	2.31695	0.00496
1490	2.31505	0.00465
1500	2.31324	0.00436
1510	2.31151	0.00409
1520	2.30985	0.00384
1530	2.30826	0.0036
1540	2.30673	0.00338
1550	2.30526	0.00317
1560	2.30384	0.00298
1570	2.30247	0.0028
1580	2.30114	0.00263
1590	2.29986	0.00247
1600	2.29862	0.00232
1610	2.29742	0.00219
1620	2.29626	0.00206
1630	2.29513	0.00193
1640	2.29404	0.00182
1650	2.29297	0.00171
1660	2.29194	0.00161
1670	2.29094	0.00152
1680	2.28997	0.00143
1690	2.28902	0.00135
1700	2.2881	0.00127
1710	2.2872	0.0012
1720	2.28632	0.00113
1730	2.28547	0.00107
1740	2.28464	0.00101
1750	2.28383	9.52508E-4
1760	2.28304	8.99628E-4
1770	2.28228	8.49943E-4
1780	2.28152	8.0325E-4
1790	2.28079	7.59355E-4
1800	2.28008	7.18082E-4
1810	2.27938	6.79261E-4
1820	2.2787	6.42739E-4
1830	2.27803	6.08369E-4
1840	2.27738	5.76015E-4
1850	2.27674	5.45551E-4
1860	2.27612	5.16859E-4
1870	2.27551	4.89828E-4
1880	2.27492	4.64354E-4
1890	2.27434	4.40341E-4
1900	2.27377	4.17699E-4
1910	2.27321	3.96344E-4
1920	2.27266	3.76196E-4
1930	2.27213	3.57182E-4
1940	2.27161	3.39233E-4
1950	2.27109	3.22284E-4
1960	2.27059	3.06276E-4
1970	2.2701	2.91151E-4
1980	2.26962	2.76857E-4
1990	2.26914	2.63344E-4
2000	2.26868	2.50566E-4
2010	2.26822	2.38479E-4
2020	2.26778	2.27043E-4
2030	2.26734	2.1622E-4
2040	2.26691	2.05974E-4
2050	2.26649	1.96271E-4
2060	2.26608	1.8708E-4
2070	2.26567	1.78371E-4
2080	2.26527	1.70118E-4
2090	2.26488	1.62293E-4
2100	2.2645	1.54872E-4

6.4. PbS 1200 – NH_4I capping

450	3.12573	0.85429
460	3.11536	0.80529
470	3.10242	0.76032
480	3.08687	0.71966
490	3.069	0.68405
500	3.04967	0.6544
510	3.0305	0.63133
520	3.01361	0.61469
530	3.00113	0.60319
540	2.99444	0.59454
550	2.99368	0.58598
560	2.99768	0.57502
570	3.0043	0.56013
580	3.0111	0.54103
590	3.01603	0.51857
600	3.01786	0.49434
610	3.01637	0.47018
620	3.01255	0.44755
630	3.00731	0.42633
640	3.00097	0.40695
650	2.99436	0.38952
660	2.98818	0.37367
670	2.98277	0.35879
680	2.97814	0.34426
690	2.97401	0.32958
700	2.96997	0.31449
710	2.96553	0.29894
720	2.9603	0.2831
730	2.95399	0.26727
740	2.94649	0.25183
750	2.93781	0.23715
760	2.92811	0.22356
770	2.91764	0.2113
780	2.9067	0.20054
790	2.89559	0.19133
800	2.88465	0.18362
810	2.87412	0.1773
820	2.86424	0.1722
830	2.85517	0.16812
840	2.84699	0.16481
850	2.83976	0.16206
860	2.83346	0.15965
870	2.82803	0.1574
880	2.8234	0.15513
890	2.81944	0.15271
900	2.81605	0.15006
910	2.81308	0.14711
920	2.81043	0.14382
930	2.80796	0.14019
940	2.80557	0.13621
950	2.80316	0.13192
960	2.80066	0.12736
970	2.79799	0.12256
980	2.79509	0.11758
990	2.79191	0.11247
1000	2.78842	0.10729
1010	2.78458	0.10207
1020	2.78036	0.09688
1030	2.77572	0.09175
1040	2.77061	0.08674
1050	2.76498	0.08192
1060	2.75876	0.07737
1070	2.75186	0.07322
1080	2.74423	0.06965
1090	2.73581	0.06692
1100	2.72665	0.06536
1110	2.71691	0.06536
1120	2.70693	0.06731
1130	2.69722	0.07151
1140	2.68849	0.07811
1150	2.68154	0.087
1160	2.6772	0.09775
1170	2.67611	0.10961
1180	2.67867	0.12155
1190	2.68487	0.13247
1200	2.69429	0.14126
1210	2.70617	0.14706
1220	2.71951	0.14932
1230	2.7332	0.14786
1240	2.74619	0.14288
1250	2.75763	0.13487
1260	2.76687	0.1245
1270	2.77355	0.11255
1280	2.77758	0.0998
1290	2.77904	0.08694
1300	2.77822	0.07455
1310	2.77548	0.06306
1320	2.77124	0.05274
1330	2.76592	0.04374
1340	2.75991	0.03609
1350	2.75352	0.02974
1360	2.74702	0.02456
1370	2.74062	0.0204
1380	2.73445	0.01713
1390	2.7286	0.01457
1400	2.7231	0.01258
1410	2.71798	0.01105
1420	2.71323	0.00986
1430	2.70883	0.00894
1440	2.70474	0.00821

1450	2.70094	0.00763
1460	2.69741	0.00716
1470	2.6941	0.00677
1480	2.691	0.00643
1490	2.68808	0.00614
1500	2.68532	0.00588
1510	2.6827	0.00564
1520	2.68021	0.00543
1530	2.67783	0.00523
1540	2.67556	0.00505
1550	2.67339	0.00487
1560	2.6713	0.00471
1570	2.6693	0.00456
1580	2.66736	0.00441
1590	2.6655	0.00428
1600	2.6637	0.00415
1610	2.66196	0.00402
1620	2.66028	0.0039
1630	2.65865	0.00379
1640	2.65707	0.00368
1650	2.65554	0.00358
1660	2.65406	0.00348
1670	2.65261	0.00338
1680	2.65121	0.00329
1690	2.64985	0.00321
1700	2.64852	0.00312
1710	2.64723	0.00304
1720	2.64597	0.00297
1730	2.64475	0.00289
1740	2.64355	0.00282
1750	2.64239	0.00275
1760	2.64125	0.00269
1770	2.64014	0.00262
1780	2.63906	0.00256
1790	2.638	0.0025
1800	2.63697	0.00244
1810	2.63596	0.00239
1820	2.63498	0.00233
1830	2.63401	0.00228
1840	2.63307	0.00223
1850	2.63215	0.00218
1860	2.63124	0.00214
1870	2.63036	0.00209
1880	2.62949	0.00205
1890	2.62865	0.00201
1900	2.62782	0.00196
1910	2.627	0.00192
1920	2.62621	0.00189
1930	2.62543	0.00185
1940	2.62466	0.00181
1950	2.62391	0.00178
1960	2.62317	0.00174
1970	2.62245	0.00171
1980	2.62174	0.00167
1990	2.62105	0.00164
2000	2.62037	0.00161
2010	2.6197	0.00158
2020	2.61904	0.00155
2030	2.61839	0.00152
2040	2.61776	0.0015
2050	2.61714	0.00147
2060	2.61653	0.00144
2070	2.61592	0.00142
2080	2.61533	0.00139
2090	2.61475	0.00137
2100	2.61418	0.00135

6.5. PbS 1200 – OA capping

450	2.12367	0.13349
460	2.10684	0.12596
470	2.09222	0.12056
480	2.07961	0.11667
490	2.0688	0.11386
500	2.05956	0.11191
510	2.05182	0.11075
520	2.046	0.11027
530	2.04207	0.10908
540	2.03886	0.10707
550	2.03596	0.10455
560	2.03319	0.10173
570	2.03051	0.0988
580	2.0279	0.09584
590	2.02538	0.0929
600	2.02297	0.09001
610	2.02066	0.08714
620	2.01844	0.08431
630	2.01628	0.08148
640	2.01416	0.07866
650	2.01204	0.07585
660	2.00988	0.07307
670	2.00766	0.07035
680	2.00537	0.06772
690	2.003	0.06521
700	2.00056	0.06286
710	1.99807	0.0607
720	1.99555	0.05875
730	1.99303	0.05702
740	1.99054	0.05552
750	1.98812	0.05425
760	1.9858	0.0532
770	1.98361	0.05235
780	1.98157	0.05168
790	1.9797	0.05115
800	1.97801	0.05075
810	1.97651	0.05043
820	1.97519	0.05017
830	1.97405	0.04995
840	1.97309	0.04972
850	1.97229	0.04948
860	1.97162	0.0492
870	1.97108	0.04886
880	1.97065	0.04846
890	1.9703	0.04798
900	1.97001	0.04741
910	1.96976	0.04676
920	1.96954	0.04603
930	1.96932	0.04521
940	1.96909	0.04431
950	1.96884	0.04334
960	1.96854	0.04231
970	1.96819	0.04121
980	1.96777	0.04007
990	1.96728	0.03889
1000	1.96668	0.03767
1010	1.96598	0.03644
1020	1.96515	0.0352
1030	1.96417	0.03397
1040	1.96303	0.03279
1050	1.96171	0.03169
1060	1.96018	0.03072
1070	1.95845	0.02994
1080	1.95654	0.02943
1090	1.95447	0.02926
1100	1.95233	0.02952
1110	1.95022	0.03027
1120	1.94827	0.03155
1130	1.94663	0.03333
1140	1.94546	0.03558
1150	1.94491	0.03817
1160	1.94508	0.04095
1170	1.94603	0.04371
1180	1.94775	0.04626
1190	1.95019	0.04839
1200	1.95321	0.04992
1210	1.95663	0.05073
1220	1.96027	0.05074
1230	1.96391	0.04996
1240	1.96737	0.04841
1250	1.97049	0.0462
1260	1.97314	0.04345
1270	1.97524	0.04029
1280	1.97675	0.03689
1290	1.97767	0.03337
1300	1.97804	0.02987
1310	1.97791	0.02648
1320	1.97734	0.02329
1330	1.97642	0.02034
1340	1.97523	0.01768
1350	1.97383	0.01532
1360	1.97229	0.01325
1370	1.97068	0.01146
1380	1.96904	0.00993
1390	1.96741	0.00864
1400	1.96581	0.00755
1410	1.96426	0.00664
1420	1.96278	0.00587
1430	1.96138	0.00524
1440	1.96005	0.00471

1450	1.9588	0.00426
1460	1.95762	0.00388
1470	1.95651	0.00356
1480	1.95546	0.00328
1490	1.95447	0.00304
1500	1.95354	0.00283
1510	1.95266	0.00264
1520	1.95182	0.00248
1530	1.95102	0.00232
1540	1.95027	0.00219
1550	1.94954	0.00206
1560	1.94885	0.00194
1570	1.94818	0.00183
1580	1.94755	0.00173
1590	1.94693	0.00164
1600	1.94634	0.00155
1610	1.94577	0.00146
1620	1.94522	0.00139
1630	1.94469	0.00131
1640	1.94418	0.00124
1650	1.94368	0.00118
1660	1.94319	0.00112
1670	1.94273	0.00106
1680	1.94227	0.001
1690	1.94183	9.52521E-4
1700	1.9414	9.03861E-4
1710	1.94099	8.57912E-4
1720	1.94058	8.14511E-4
1730	1.94019	7.73508E-4
1740	1.9398	7.34761E-4
1750	1.93943	6.98136E-4
1760	1.93907	6.63511E-4
1770	1.93871	6.30768E-4
1780	1.93836	5.99798E-4
1790	1.93803	5.70498E-4
1800	1.9377	5.42773E-4
1810	1.93738	5.16531E-4
1820	1.93706	4.91688E-4
1830	1.93676	4.68163E-4
1840	1.93646	4.45881E-4
1850	1.93617	4.24772E-4
1860	1.93588	4.0477E-4
1870	1.9356	3.85811E-4
1880	1.93533	3.67837E-4
1890	1.93506	3.50793E-4
1900	1.9348	3.34627E-4
1910	1.93455	3.19289E-4
1920	1.9343	3.04735E-4
1930	1.93406	2.9092E-4
1940	1.93382	2.77804E-4
1950	1.93358	2.65348E-4
1960	1.93335	2.53516E-4
1970	1.93313	2.42275E-4
1980	1.93291	2.31592E-4
1990	1.93269	2.21437E-4
2000	1.93248	2.11781E-4
2010	1.93227	2.02599E-4
2020	1.93207	1.93863E-4
2030	1.93187	1.85552E-4
2040	1.93168	1.77641E-4
2050	1.93148	1.7011E-4
2060	1.9313	1.62939E-4
2070	1.93111	1.5611E-4
2080	1.93093	1.49604E-4
2090	1.93075	1.43404E-4
2100	1.93058	1.37494E-4

6.6. PbS 1370 – EDT capping

450	2.71268	0.28164
460	2.69022	0.26712
470	2.66916	0.2557
480	2.64956	0.24727
490	2.63171	0.2419
500	2.61627	0.23978
510	2.60509	0.241
520	2.60005	0.24139
530	2.59758	0.23915
540	2.59626	0.23482
550	2.59532	0.22888
560	2.59436	0.22174
570	2.59312	0.21375
580	2.59149	0.2052
590	2.5894	0.19632
600	2.58684	0.18731
610	2.58385	0.1783
620	2.58045	0.16942
630	2.57669	0.16073
640	2.57261	0.15231
650	2.56828	0.14418
660	2.56372	0.13638
670	2.55898	0.12891
680	2.55409	0.12179
690	2.54907	0.11502
700	2.54397	0.10859
710	2.53878	0.1025
720	2.53353	0.09675
730	2.52824	0.09133
740	2.5229	0.08625
750	2.51754	0.08149
760	2.51216	0.07707
770	2.50678	0.07299
780	2.5014	0.06925
790	2.49606	0.06586
800	2.49075	0.06283
810	2.48552	0.06015
820	2.48039	0.05782
830	2.47539	0.05585
840	2.47055	0.05421
850	2.46591	0.05289
860	2.46149	0.05188
870	2.45732	0.05114
880	2.45342	0.05063
890	2.44982	0.05033
900	2.44652	0.05019
910	2.44354	0.05016
920	2.44086	0.05021
930	2.43848	0.0503
940	2.43638	0.05038
950	2.43455	0.05043
960	2.43296	0.05041
970	2.43158	0.0503
980	2.43039	0.05007
990	2.42935	0.04972
1000	2.42842	0.04923
1010	2.42759	0.0486
1020	2.42681	0.04783
1030	2.42607	0.04693
1040	2.42533	0.0459
1050	2.42458	0.04475
1060	2.42379	0.04349
1070	2.42294	0.04215
1080	2.42203	0.04073
1090	2.42104	0.03924
1100	2.41996	0.03771
1110	2.41878	0.03614
1120	2.41749	0.03456
1130	2.41609	0.03296
1140	2.41458	0.03138
1150	2.41294	0.02981
1160	2.41116	0.02828
1170	2.40923	0.0268
1180	2.40714	0.02539
1190	2.40487	0.02407
1200	2.4024	0.02289
1210	2.39973	0.0219
1220	2.39685	0.02115
1230	2.39378	0.02073
1240	2.39055	0.02071
1250	2.38723	0.02118
1260	2.38393	0.02222
1270	2.38078	0.02387
1280	2.37794	0.02615
1290	2.37558	0.02902
1300	2.37387	0.03238
1310	2.37297	0.03609
1320	2.37296	0.03996
1330	2.37391	0.04375
1340	2.37579	0.04723
1350	2.3785	0.05018
1360	2.3819	0.05241
1370	2.38579	0.05377
1380	2.38994	0.0542
1390	2.39413	0.05367
1400	2.39813	0.05224
1410	2.40176	0.05
1420	2.40487	0.04709

1430	2.40736	0.04368
1440	2.40918	0.03992
1450	2.41031	0.03598
1460	2.41079	0.03201
1470	2.41067	0.02813
1480	2.41001	0.02445
1490	2.40891	0.02103
1500	2.40746	0.01792
1510	2.40574	0.01515
1520	2.40383	0.01273
1530	2.40181	0.01064
1540	2.39973	0.00886
1550	2.39765	0.00737
1560	2.3956	0.00614
1570	2.3936	0.00512
1580	2.39169	0.00429
1590	2.38986	0.00362
1600	2.38813	0.00309
1610	2.38649	0.00266
1620	2.38494	0.00231
1630	2.38348	0.00204
1640	2.38211	0.00182
1650	2.38081	0.00164
1660	2.37959	0.00149
1670	2.37843	0.00138
1680	2.37733	0.00128
1690	2.37628	0.00119
1700	2.37528	0.00112
1710	2.37433	0.00106
1720	2.37342	0.00101
1730	2.37254	9.57595E-4
1740	2.3717	9.14004E-4
1750	2.37089	8.74293E-4
1760	2.3701	8.378E-4
1770	2.36935	8.04021E-4
1780	2.36861	7.72568E-4
1790	2.3679	7.43137E-4
1800	2.36721	7.15492E-4
1810	2.36654	6.89441E-4
1820	2.36589	6.6483E-4
1830	2.36526	6.4153E-4
1840	2.36464	6.19433E-4
1850	2.36404	5.98445E-4
1860	2.36346	5.78485E-4
1870	2.36288	5.59483E-4
1880	2.36232	5.41373E-4
1890	2.36178	5.24099E-4
1900	2.36124	5.07608E-4
1910	2.36072	4.91854E-4
1920	2.36021	4.76791E-4
1930	2.35971	4.62379E-4
1940	2.35922	4.48582E-4
1950	2.35874	4.35365E-4
1960	2.35827	4.22695E-4
1970	2.35781	4.10543E-4
1980	2.35736	3.98881E-4
1990	2.35691	3.87682E-4
2000	2.35647	3.76924E-4
2010	2.35605	3.66583E-4
2020	2.35562	3.56637E-4
2030	2.35521	3.47068E-4
2040	2.3548	3.37856E-4
2050	2.3544	3.28984E-4
2060	2.35401	3.20435E-4
2070	2.35363	3.12195E-4
2080	2.35324	3.04248E-4
2090	2.35287	2.96581E-4
2100	2.3525	2.89181E-4

6.7. PbS 1370 – NH_4I capping

450	3.39198	0.60482
460	3.34321	0.57081
470	3.30243	0.54637
480	3.26951	0.5283
490	3.24375	0.51409
500	3.22413	0.50188
510	3.20949	0.49039
520	3.19876	0.47886
530	3.19094	0.46685
540	3.18527	0.45424
550	3.1812	0.44107
560	3.17858	0.42747
570	3.17777	0.41264
580	3.17716	0.39583
590	3.17589	0.37772
600	3.17361	0.35883
610	3.17014	0.33963
620	3.16546	0.3205
630	3.15959	0.30176
640	3.15263	0.28366
650	3.14471	0.26641
660	3.13599	0.25018
670	3.12665	0.23507
680	3.11686	0.22115
690	3.10683	0.20844
700	3.09671	0.19692
710	3.08668	0.18653
720	3.07686	0.17719
730	3.06738	0.16878
740	3.05831	0.1612
750	3.04969	0.1543
760	3.04154	0.14797
770	3.03385	0.14209
780	3.02659	0.13655
790	3.01971	0.13128
800	3.01315	0.12622
810	3.00683	0.12133
820	3.0007	0.11659
830	2.9947	0.11202
840	2.98878	0.10763
850	2.98293	0.10344
860	2.97712	0.09951
870	2.97136	0.09585
880	2.96566	0.09251
890	2.96007	0.08951
900	2.95462	0.08686
910	2.94936	0.08455
920	2.94433	0.08258
930	2.93958	0.08091
940	2.93515	0.0795
950	2.93106	0.0783
960	2.92734	0.07725
970	2.92398	0.0763
980	2.92098	0.07538
990	2.91831	0.07445
1000	2.91595	0.07345
1010	2.91386	0.07233
1020	2.912	0.07107
1030	2.91031	0.06965
1040	2.90875	0.06804
1050	2.90726	0.06625
1060	2.90581	0.06427
1070	2.90436	0.06213
1080	2.90285	0.05983
1090	2.90126	0.0574
1100	2.89957	0.05486
1110	2.89775	0.05224
1120	2.89578	0.04957
1130	2.89366	0.04687
1140	2.89137	0.04416
1150	2.88891	0.04147
1160	2.88627	0.03883
1170	2.88344	0.03625
1180	2.88043	0.03374
1190	2.87722	0.03133
1200	2.87379	0.02903
1210	2.8701	0.02686
1220	2.86612	0.02485
1230	2.86178	0.02307
1240	2.85702	0.02161
1250	2.85177	0.02066
1260	2.84605	0.02044
1270	2.83995	0.02126
1280	2.83371	0.02342
1290	2.82778	0.02719
1300	2.82274	0.03265
1310	2.81928	0.03963
1320	2.81803	0.04763
1330	2.81943	0.05589
1340	2.82357	0.06344
1350	2.83012	0.06934
1360	2.83839	0.07282
1370	2.84747	0.07347
1380	2.85635	0.07125
1390	2.86414	0.06652
1400	2.87021	0.05986
1410	2.87419	0.05203
1420	2.87603	0.04377
1430	2.87591	0.0357
1440	2.87417	0.02832

1450	2.87122	0.0219
1460	2.86748	0.01658
1470	2.86333	0.01234
1480	2.85906	0.00909
1490	2.85487	0.00667
1500	2.8509	0.00492
1510	2.84722	0.00369
1520	2.84385	0.00283
1530	2.84078	0.00224
1540	2.83798	0.00183
1550	2.83543	0.00155
1560	2.8331	0.00135
1570	2.83094	0.0012
1580	2.82894	0.00109
1590	2.82708	0.001
1600	2.82533	9.29897E-4
1610	2.82367	8.67181E-4
1620	2.8221	8.12213E-4
1630	2.82061	7.63173E-4
1640	2.81919	7.18887E-4
1650	2.81783	6.78565E-4
1660	2.81652	6.41646E-4
1670	2.81527	6.07707E-4
1680	2.81406	5.76414E-4
1690	2.81289	5.47491E-4
1700	2.81177	5.20702E-4
1710	2.81068	4.95842E-4
1720	2.80963	4.72731E-4
1730	2.80861	4.51209E-4
1740	2.80762	4.31134E-4
1750	2.80666	4.12377E-4
1760	2.80573	3.94825E-4
1770	2.80483	3.78374E-4
1780	2.80395	3.62932E-4
1790	2.80309	3.48416E-4
1800	2.80226	3.34751E-4
1810	2.80145	3.2187E-4
1820	2.80065	3.09711E-4
1830	2.79988	2.98219E-4
1840	2.79913	2.87345E-4
1850	2.79839	2.77042E-4
1860	2.79768	2.6727E-4
1870	2.79698	2.57991E-4
1880	2.79629	2.49171E-4
1890	2.79562	2.40779E-4
1900	2.79497	2.32787E-4
1910	2.79433	2.25168E-4
1920	2.7937	2.17899E-4
1930	2.79309	2.10958E-4
1940	2.79249	2.04325E-4
1950	2.7919	1.97981E-4
1960	2.79133	1.91909E-4
1970	2.79076	1.86094E-4
1980	2.79021	1.8052E-4
1990	2.78967	1.75176E-4
2000	2.78914	1.70047E-4
2010	2.78862	1.65123E-4
2020	2.78811	1.60393E-4
2030	2.78761	1.55846E-4
2040	2.78712	1.51474E-4
2050	2.78663	1.47267E-4
2060	2.78616	1.43217E-4
2070	2.7857	1.39318E-4
2080	2.78524	1.35561E-4
2090	2.78479	1.31939E-4
2100	2.78435	1.28448E-4

6.8. PbS 1370 – OA

450	2.16791	0.19783
460	2.1622	0.19265
470	2.15749	0.18766
480	2.15357	0.18275
490	2.15024	0.17785
500	2.14734	0.17296
510	2.14475	0.1681
520	2.14239	0.16333
530	2.14023	0.15871
540	2.13833	0.15432
550	2.13688	0.1502
560	2.13611	0.14583
570	2.13549	0.14099
580	2.1348	0.13583
590	2.13394	0.13045
600	2.13283	0.12494
610	2.13145	0.1194
620	2.12978	0.11389
630	2.12781	0.10847
640	2.12555	0.10323
650	2.123	0.09824
660	2.1202	0.09356
670	2.11722	0.08927
680	2.11414	0.08542
690	2.11109	0.082
700	2.10816	0.079
710	2.10546	0.07632
720	2.10302	0.07386
730	2.10085	0.0715
740	2.0989	0.06913
750	2.09708	0.0667
760	2.09529	0.06418
770	2.09345	0.06159
780	2.0915	0.05899
790	2.08941	0.05645
800	2.08717	0.05403
810	2.08481	0.0518
820	2.08239	0.04978
830	2.07993	0.048
840	2.0775	0.04646
850	2.07514	0.04514
860	2.07288	0.04403
870	2.07075	0.0431
880	2.06876	0.0423
890	2.06691	0.04163
900	2.06521	0.04103
910	2.06366	0.04051
920	2.06223	0.04002
930	2.06094	0.03956
940	2.05976	0.0391
950	2.05868	0.03865
960	2.0577	0.03819
970	2.0568	0.03771
980	2.05596	0.03722
990	2.05519	0.0367
1000	2.05446	0.03615
1010	2.05378	0.03558
1020	2.05313	0.03499
1030	2.05251	0.03437
1040	2.05191	0.03373
1050	2.05132	0.03306
1060	2.05074	0.03238
1070	2.05017	0.03167
1080	2.04959	0.03095
1090	2.04901	0.03022
1100	2.04842	0.02948
1110	2.04782	0.02873
1120	2.04721	0.02798
1130	2.04658	0.02722
1140	2.04594	0.02646
1150	2.04527	0.02571
1160	2.04458	0.02495
1170	2.04386	0.02421
1180	2.04312	0.02347
1190	2.04233	0.02273
1200	2.04151	0.02201
1210	2.04064	0.0213
1220	2.03972	0.02061
1230	2.03871	0.01994
1240	2.03762	0.0193
1250	2.0364	0.01871
1260	2.03503	0.01822
1270	2.03349	0.01788
1280	2.03178	0.01779
1290	2.02993	0.01807
1300	2.02804	0.01883
1310	2.02629	0.02015
1320	2.0249	0.02206
1330	2.02412	0.02446
1340	2.02417	0.02717
1350	2.02519	0.02986
1360	2.02716	0.03217
1370	2.02993	0.03378
1380	2.0332	0.03444
1390	2.03661	0.03402
1400	2.0398	0.03259
1410	2.04245	0.03031
1420	2.04436	0.02745
1430	2.04547	0.0243
1440	2.04579	0.02113

1450	2.04544	0.01815
1460	2.04457	0.01551
1470	2.04336	0.01327
1480	2.04194	0.01144
1490	2.04045	0.01
1500	2.03897	0.00888
1510	2.03755	0.00802
1520	2.03624	0.00736
1530	2.03503	0.00685
1540	2.03392	0.00645
1550	2.03292	0.00612
1560	2.032	0.00584
1570	2.03115	0.00559
1580	2.03036	0.00537
1590	2.02962	0.00516
1600	2.02892	0.00497
1610	2.02827	0.00479
1620	2.02764	0.00462
1630	2.02704	0.00445
1640	2.02647	0.00429
1650	2.02591	0.00414
1660	2.02538	0.00399
1670	2.02487	0.00385
1680	2.02437	0.00372
1690	2.02388	0.00359
1700	2.02341	0.00347
1710	2.02296	0.00335
1720	2.02251	0.00323
1730	2.02208	0.00312
1740	2.02166	0.00302
1750	2.02125	0.00292
1760	2.02085	0.00282
1770	2.02046	0.00273
1780	2.02008	0.00264
1790	2.0197	0.00255
1800	2.01934	0.00247
1810	2.01898	0.00239
1820	2.01864	0.00231
1830	2.01829	0.00224
1840	2.01796	0.00217
1850	2.01764	0.0021
1860	2.01732	0.00203
1870	2.017	0.00197
1880	2.0167	0.00191
1890	2.0164	0.00185
1900	2.0161	0.0018
1910	2.01582	0.00174
1920	2.01553	0.00169
1930	2.01526	0.00164
1940	2.01499	0.00159
1950	2.01472	0.00155
1960	2.01446	0.0015
1970	2.0142	0.00146
1980	2.01395	0.00142
1990	2.01371	0.00138
2000	2.01347	0.00134
2010	2.01323	0.0013
2020	2.01299	0.00127
2030	2.01277	0.00123
2040	2.01254	0.0012
2050	2.01232	0.00116
2060	2.0121	0.00113
2070	2.01189	0.0011
2080	2.01168	0.00108
2090	2.01148	0.00105
2100	2.01127	0.00102

6.9. PbS 1450 – OA capping

450	2.33297	0.34978
460	2.3359	0.33267
470	2.33752	0.31534
480	2.33773	0.29812
490	2.33652	0.28132
500	2.33397	0.26527
510	2.33023	0.25025
520	2.32556	0.23653
530	2.32033	0.22437
540	2.31532	0.2139
550	2.31116	0.20393
560	2.30696	0.19408
570	2.30248	0.18457
580	2.29768	0.17558
590	2.2926	0.16722
600	2.28732	0.15957
610	2.28197	0.15268
620	2.27666	0.14653
630	2.2715	0.14108
640	2.26658	0.13628
650	2.26199	0.13203
660	2.25777	0.12824
670	2.25393	0.12479
680	2.25049	0.12159
690	2.24741	0.11855
700	2.24465	0.11559
710	2.24215	0.11265
720	2.23986	0.10968
730	2.23771	0.10668
740	2.23564	0.10363
750	2.23359	0.10053
760	2.23153	0.09741
770	2.22941	0.0943
780	2.22721	0.09123
790	2.22492	0.08823
800	2.22254	0.08534
810	2.22006	0.08259
820	2.21751	0.08001
830	2.2149	0.07761
840	2.21226	0.07543
850	2.20961	0.07346
860	2.20698	0.07171
870	2.20439	0.07019
880	2.20188	0.06888
890	2.19947	0.06777
900	2.19717	0.06685
910	2.19501	0.0661
920	2.193	0.06549
930	2.19114	0.06502
940	2.18946	0.06464
950	2.18794	0.06435
960	2.18659	0.06411
970	2.18541	0.06392
980	2.18439	0.06374
990	2.18351	0.06356
1000	2.18278	0.06337
1010	2.18218	0.06315
1020	2.18169	0.06289
1030	2.18131	0.06258
1040	2.18102	0.06221
1050	2.18081	0.06178
1060	2.18066	0.06129
1070	2.18057	0.06072
1080	2.18051	0.06009
1090	2.18048	0.05939
1100	2.18047	0.05862
1110	2.18046	0.05778
1120	2.18045	0.05689
1130	2.18043	0.05594
1140	2.1804	0.05493
1150	2.18034	0.05388
1160	2.18025	0.05279
1170	2.18012	0.05166
1180	2.17996	0.0505
1190	2.17975	0.04931
1200	2.17949	0.0481
1210	2.17918	0.04687
1220	2.17882	0.04563
1230	2.1784	0.04439
1240	2.17792	0.04314
1250	2.17737	0.04189
1260	2.17675	0.04066
1270	2.17605	0.03943
1280	2.17527	0.03823
1290	2.17439	0.03706
1300	2.1734	0.03595
1310	2.1723	0.03491
1320	2.17108	0.03397
1330	2.16974	0.03316
1340	2.16829	0.03254
1350	2.16676	0.03215
1360	2.16519	0.03203
1370	2.16364	0.03221
1380	2.16218	0.03271
1390	2.16091	0.03355
1400	2.15991	0.03468
1410	2.15927	0.03604
1420	2.15907	0.03755
1430	2.15935	0.03911
1440	2.16012	0.04058

1450	2.16135	0.04184
1460	2.163	0.04278
1470	2.16496	0.0433
1480	2.16712	0.04335
1490	2.16936	0.04288
1500	2.17156	0.04191
1510	2.1736	0.04048
1520	2.17539	0.03864
1530	2.17686	0.03649
1540	2.17796	0.0341
1550	2.17867	0.03158
1560	2.17899	0.02902
1570	2.17896	0.02648
1580	2.17861	0.02404
1590	2.17798	0.02175
1600	2.17713	0.01963
1610	2.17611	0.0177
1620	2.17496	0.01598
1630	2.17373	0.01446
1640	2.17246	0.01313
1650	2.17118	0.01198
1660	2.1699	0.01099
1670	2.16866	0.01013
1680	2.16745	0.00939
1690	2.1663	0.00875
1700	2.16519	0.0082
1710	2.16414	0.00772
1720	2.16314	0.0073
1730	2.16219	0.00692
1740	2.16129	0.00658
1750	2.16043	0.00628
1760	2.15962	0.006
1770	2.15884	0.00574
1780	2.15809	0.0055
1790	2.15738	0.00528
1800	2.1567	0.00507
1810	2.15604	0.00487
1820	2.1554	0.00468
1830	2.15479	0.0045
1840	2.1542	0.00433
1850	2.15363	0.00416
1860	2.15307	0.00401
1870	2.15253	0.00386
1880	2.15201	0.00372
1890	2.1515	0.00358
1900	2.15101	0.00345
1910	2.15053	0.00332
1920	2.15006	0.0032
1930	2.14961	0.00309
1940	2.14916	0.00298
1950	2.14873	0.00287
1960	2.14831	0.00277
1970	2.1479	0.00267
1980	2.1475	0.00258
1990	2.1471	0.00249
2000	2.14672	0.0024
2010	2.14635	0.00232
2020	2.14598	0.00224
2030	2.14562	0.00216
2040	2.14528	0.00209
2050	2.14494	0.00202
2060	2.1446	0.00195
2070	2.14428	0.00189
2080	2.14396	0.00182
2090	2.14365	0.00176
2100	2.14335	0.0017

6.10. PbS 1550 – EDT

450	2.72212	0.70877
460	2.7145	0.68459
470	2.70843	0.66268
480	2.70385	0.64226
490	2.70051	0.62274
500	2.69806	0.60369
510	2.69612	0.58487
520	2.69433	0.56619
530	2.6924	0.54767
540	2.69011	0.52941
550	2.68732	0.51158
560	2.68397	0.49431
570	2.68007	0.47778
580	2.67568	0.46211
590	2.67089	0.44742
600	2.66583	0.43379
610	2.66065	0.42127
620	2.65551	0.4099
630	2.65058	0.39968
640	2.64611	0.3906
650	2.64238	0.38264
660	2.64004	0.37566
670	2.63938	0.36826
680	2.63934	0.36007
690	2.63951	0.35123
700	2.63965	0.34187
710	2.63962	0.33208
720	2.6393	0.32197
730	2.6386	0.31163
740	2.63747	0.30115
750	2.63586	0.29061
760	2.63374	0.28011
770	2.63112	0.26973
780	2.62798	0.25954
790	2.62433	0.24963
800	2.62021	0.24005
810	2.61564	0.23087
820	2.61065	0.22216
830	2.60531	0.21395
840	2.59965	0.2063
850	2.59375	0.19924
860	2.58766	0.1928
870	2.58144	0.18698
880	2.57518	0.1818
890	2.56893	0.17726
900	2.56276	0.17333
910	2.55674	0.17001
920	2.55091	0.16725
930	2.54535	0.16502
940	2.54009	0.16328
950	2.53516	0.16198
960	2.53062	0.16107
970	2.52648	0.16049
980	2.52275	0.16018
990	2.51945	0.1601
1000	2.51658	0.16017
1010	2.51413	0.16035
1020	2.51209	0.16059
1030	2.51044	0.16085
1040	2.50917	0.16107
1050	2.50824	0.16122
1060	2.50762	0.16126
1070	2.50729	0.16118
1080	2.50721	0.16094
1090	2.50735	0.16052
1100	2.50767	0.15992
1110	2.50813	0.15913
1120	2.50871	0.15813
1130	2.50938	0.15692
1140	2.51009	0.15552
1150	2.51083	0.15392
1160	2.51157	0.15212
1170	2.51228	0.15015
1180	2.51294	0.148
1190	2.51352	0.14569
1200	2.51402	0.14324
1210	2.51441	0.14065
1220	2.51466	0.13795
1230	2.51478	0.13514
1240	2.51474	0.13225
1250	2.51453	0.12928
1260	2.51413	0.12627
1270	2.51353	0.12323
1280	2.51272	0.12018
1290	2.51168	0.11716
1300	2.5104	0.11419
1310	2.50888	0.1113
1320	2.50711	0.10854
1330	2.50509	0.10596
1340	2.50283	0.1036
1350	2.50035	0.1015
1360	2.49768	0.09973
1370	2.49486	0.09834
1380	2.49194	0.09736
1390	2.489	0.09684
1400	2.48611	0.0968
1410	2.48336	0.09725
1420	2.48083	0.09818
1430	2.47863	0.09957

1440	2.47684	0.10136
1450	2.47554	0.10349
1460	2.47481	0.10588
1470	2.47469	0.10841
1480	2.47521	0.11099
1490	2.47638	0.1135
1500	2.47817	0.11582
1510	2.48056	0.11784
1520	2.48348	0.11946
1530	2.48686	0.1206
1540	2.49059	0.12118
1550	2.49458	0.12117
1560	2.49872	0.12054
1570	2.5029	0.11927
1580	2.50703	0.11739
1590	2.51101	0.11492
1600	2.51475	0.11191
1610	2.51818	0.10842
1620	2.52124	0.1045
1630	2.5239	0.10024
1640	2.5261	0.0957
1650	2.52785	0.09095
1660	2.52914	0.08608
1670	2.52996	0.08114
1680	2.53034	0.0762
1690	2.53029	0.07132
1700	2.52985	0.06653
1710	2.52905	0.06189
1720	2.52793	0.05742
1730	2.52651	0.05316
1740	2.52485	0.04911
1750	2.52298	0.04531
1760	2.52093	0.04174
1770	2.51874	0.03842
1780	2.51644	0.03534
1790	2.51407	0.0325
1800	2.51164	0.02989
1810	2.50917	0.02749
1820	2.5067	0.02531
1830	2.50424	0.02332
1840	2.5018	0.02152
1850	2.49939	0.01988
1860	2.49702	0.0184
1870	2.49471	0.01706
1880	2.49245	0.01585
1890	2.49025	0.01475
1900	2.48811	0.01376
1910	2.48604	0.01286
1920	2.48403	0.01205
1930	2.48209	0.01131
1940	2.48022	0.01064
1950	2.4784	0.01003
1960	2.47665	0.00947
1970	2.47495	0.00896
1980	2.47332	0.0085
1990	2.47173	0.00807
2000	2.4702	0.00767
2010	2.46872	0.0073
2020	2.46729	0.00696
2030	2.4659	0.00665
2040	2.46455	0.00635
2050	2.46325	0.00608
2060	2.46198	0.00582
2070	2.46075	0.00557
2080	2.45956	0.00534
2090	2.4584	0.00513
2100	2.45727	0.00492

6.11. PbS 1550 – NH_4I capping

450	2.87743	0.85015
460	2.88942	0.83366
470	2.90135	0.81326
480	2.91164	0.79041
490	2.91967	0.76666
500	2.92555	0.74332
510	2.92986	0.72127
520	2.93338	0.7009
530	2.93687	0.68217
540	2.94091	0.66472
550	2.94582	0.648
560	2.95163	0.63142
570	2.95815	0.61449
580	2.96503	0.59685
590	2.97184	0.57833
600	2.97816	0.55893
610	2.98366	0.53879
620	2.98818	0.51813
630	2.99151	0.49693
640	2.99333	0.47554
650	2.9936	0.45434
660	2.99238	0.43363
670	2.98981	0.41369
680	2.98608	0.3947
690	2.9814	0.37679
700	2.97597	0.36003
710	2.97001	0.34442
720	2.96368	0.32994
730	2.95715	0.31653
740	2.95053	0.30411
750	2.94392	0.2926
760	2.93738	0.28189
770	2.93095	0.2719
780	2.92465	0.26254
790	2.91849	0.25375
800	2.91246	0.24547
810	2.90655	0.23764
820	2.90074	0.23025
830	2.89502	0.22325
840	2.88938	0.21665
850	2.8838	0.21043
860	2.87829	0.2046
870	2.87286	0.19914
880	2.86749	0.19407
890	2.86223	0.18938
900	2.85707	0.18507
910	2.85204	0.18114
920	2.84717	0.17757
930	2.84249	0.17435
940	2.838	0.17147
950	2.83374	0.1689
960	2.82973	0.16661
970	2.82598	0.16457
980	2.8225	0.16276
990	2.81931	0.16113
1000	2.81641	0.15966
1010	2.81379	0.15831
1020	2.81146	0.15704
1030	2.80941	0.15582
1040	2.80762	0.15462
1050	2.80607	0.15342
1060	2.80476	0.15218
1070	2.80365	0.15089
1080	2.80274	0.14953
1090	2.80198	0.14807
1100	2.80137	0.14652
1110	2.80087	0.14485
1120	2.80046	0.14307
1130	2.80012	0.14117
1140	2.79983	0.13914
1150	2.79956	0.137
1160	2.79929	0.13474
1170	2.79901	0.13236
1180	2.7987	0.12989
1190	2.79833	0.12731
1200	2.7979	0.12465
1210	2.79739	0.12191
1220	2.79678	0.1191
1230	2.79607	0.11623
1240	2.79524	0.11332
1250	2.79429	0.11036
1260	2.79319	0.10739
1270	2.79194	0.1044
1280	2.79052	0.10141
1290	2.78892	0.09844
1300	2.78712	0.09551
1310	2.78511	0.09265
1320	2.78286	0.08988
1330	2.78036	0.08725
1340	2.7776	0.0848
1350	2.77458	0.08259
1360	2.77131	0.0807
1370	2.76781	0.07919
1380	2.76413	0.07814
1390	2.76034	0.07763
1400	2.75653	0.07772
1410	2.75282	0.07846
1420	2.74934	0.07986
1430	2.74624	0.08191
1440	2.74367	0.08456

1450	2.74178	0.08772
1460	2.74069	0.09125
1470	2.7405	0.09501
1480	2.74124	0.09879
1490	2.74294	0.10241
1500	2.74556	0.10566
1510	2.749	0.10837
1520	2.75314	0.11036
1530	2.75782	0.11153
1540	2.76286	0.11178
1550	2.76806	0.11108
1560	2.77325	0.10944
1570	2.77824	0.10689
1580	2.78288	0.10351
1590	2.78704	0.09941
1600	2.79061	0.09472
1610	2.79354	0.08956
1620	2.79576	0.08407
1630	2.79729	0.07839
1640	2.79812	0.07263
1650	2.7983	0.06691
1660	2.79788	0.06132
1670	2.7969	0.05595
1680	2.79546	0.05084
1690	2.79361	0.04606
1700	2.79142	0.04162
1710	2.78898	0.03754
1720	2.78634	0.03383
1730	2.78356	0.03047
1740	2.78069	0.02747
1750	2.77779	0.02478
1760	2.77487	0.0224
1770	2.77199	0.0203
1780	2.76915	0.01845
1790	2.76638	0.01682
1800	2.7637	0.0154
1810	2.7611	0.01414
1820	2.7586	0.01305
1830	2.75619	0.01208
1840	2.75388	0.01122
1850	2.75167	0.01047
1860	2.74955	0.0098
1870	2.74752	0.0092
1880	2.74558	0.00866
1890	2.74371	0.00817
1900	2.74192	0.00773
1910	2.7402	0.00733
1920	2.73855	0.00696
1930	2.73696	0.00662
1940	2.73543	0.0063
1950	2.73395	0.00601
1960	2.73252	0.00573
1970	2.73114	0.00548
1980	2.7298	0.00523
1990	2.7285	0.005
2000	2.72725	0.00479
2010	2.72603	0.00458
2020	2.72484	0.00439
2030	2.72369	0.0042
2040	2.72257	0.00403
2050	2.72147	0.00386
2060	2.72041	0.0037
2070	2.71937	0.00355
2080	2.71836	0.0034
2090	2.71737	0.00326
2100	2.71641	0.00313

6.12. PbS 1550 – OA capping

450	2.22462	0.21365
460	2.20823	0.19597
470	2.19215	0.18181
480	2.17672	0.17081
490	2.1622	0.16266
500	2.14885	0.15715
510	2.13704	0.15413
520	2.12741	0.1535
530	2.12156	0.15405
540	2.11813	0.15331
550	2.11571	0.15151
560	2.11379	0.14896
570	2.11206	0.14591
580	2.11041	0.14255
590	2.10875	0.13904
600	2.10708	0.13549
610	2.1054	0.13198
620	2.10373	0.12856
630	2.10211	0.12523
640	2.10054	0.12201
650	2.09905	0.1189
660	2.09764	0.11586
670	2.09631	0.1129
680	2.09506	0.10998
690	2.09387	0.1071
700	2.09273	0.10423
710	2.09162	0.10138
720	2.09053	0.09853
730	2.08942	0.09569
740	2.08828	0.09286
750	2.08711	0.09005
760	2.08587	0.08727
770	2.08457	0.08453
780	2.0832	0.08185
790	2.08174	0.07924
800	2.08022	0.07671
810	2.07861	0.07429
820	2.07695	0.07199
830	2.07522	0.06981
840	2.07344	0.06778
850	2.07164	0.06589
860	2.06981	0.06415
870	2.06798	0.06257
880	2.06616	0.06114
890	2.06436	0.05987
900	2.06261	0.05875
910	2.06091	0.05776
920	2.05928	0.05691
930	2.05772	0.05619
940	2.05625	0.05558
950	2.05488	0.05507
960	2.05361	0.05464
970	2.05244	0.05429
980	2.05138	0.054
990	2.05042	0.05376
1000	2.04957	0.05355
1010	2.04883	0.05337
1020	2.04818	0.0532
1030	2.04763	0.05303
1040	2.04717	0.05285
1050	2.04679	0.05265
1060	2.04648	0.05244
1070	2.04624	0.05219
1080	2.04607	0.05191
1090	2.04594	0.0516
1100	2.04586	0.05124
1110	2.04581	0.05084
1120	2.04579	0.05039
1130	2.04579	0.0499
1140	2.04581	0.04937
1150	2.04583	0.04879
1160	2.04586	0.04817
1170	2.04588	0.04751
1180	2.04589	0.04681
1190	2.04588	0.04608
1200	2.04586	0.04532
1210	2.04581	0.04452
1220	2.04573	0.0437
1230	2.04561	0.04285
1240	2.04546	0.04199
1250	2.04527	0.0411
1260	2.04504	0.0402
1270	2.04475	0.0393
1280	2.04441	0.03839
1290	2.04401	0.03747
1300	2.04354	0.03657
1310	2.043	0.03568
1320	2.04238	0.03481
1330	2.04167	0.03398
1340	2.04088	0.03321
1350	2.03999	0.03252
1360	2.03901	0.03192
1370	2.03795	0.03145
1380	2.03682	0.03114
1390	2.03565	0.031
1400	2.03446	0.03107
1410	2.0333	0.03136
1420	2.03222	0.03188
1430	2.03126	0.03262
1440	2.03048	0.03357

1450	2.02993	0.03471
1460	2.02965	0.03598
1470	2.02968	0.03734
1480	2.03005	0.03872
1490	2.03075	0.04004
1500	2.03177	0.04125
1510	2.0331	0.04227
1520	2.03468	0.04304
1530	2.03646	0.04353
1540	2.03839	0.04369
1550	2.0404	0.04351
1560	2.0424	0.04298
1570	2.04435	0.04212
1580	2.04619	0.04095
1590	2.04786	0.03951
1600	2.04932	0.03784
1610	2.05055	0.03599
1620	2.05153	0.034
1630	2.05225	0.03193
1640	2.05271	0.02982
1650	2.05293	0.02772
1660	2.05293	0.02565
1670	2.05272	0.02365
1680	2.05232	0.02174
1690	2.05178	0.01994
1700	2.0511	0.01827
1710	2.05032	0.01673
1720	2.04946	0.01531
1730	2.04854	0.01403
1740	2.04759	0.01287
1750	2.04661	0.01183
1760	2.04563	0.01091
1770	2.04465	0.01008
1780	2.04369	0.00935
1790	2.04274	0.00869
1800	2.04182	0.00812
1810	2.04093	0.0076
1820	2.04008	0.00715
1830	2.03925	0.00674
1840	2.03846	0.00638
1850	2.0377	0.00605
1860	2.03697	0.00575
1870	2.03627	0.00548
1880	2.0356	0.00524
1890	2.03496	0.00501
1900	2.03434	0.0048
1910	2.03375	0.00461
1920	2.03318	0.00443
1930	2.03263	0.00426
1940	2.0321	0.0041
1950	2.03159	0.00395
1960	2.03109	0.0038
1970	2.03061	0.00367
1980	2.03014	0.00354
1990	2.02969	0.00342
2000	2.02926	0.0033
2010	2.02883	0.00319
2020	2.02841	0.00308
2030	2.02801	0.00297
2040	2.02762	0.00287
2050	2.02723	0.00278
2060	2.02686	0.00269
2070	2.02649	0.0026
2080	2.02614	0.00251
2090	2.02579	0.00243
2100	2.02545	0.00235