

EMVA 1288 Standard Specification Sheet

Camera Information	
Vendor Name	Prosilica Inc.
Camera Name	GX1920
UID	105000
Serial Number	02-2410A-05000
Part Number	2410
Part Version	65
Interface ID	65540
Interface Type	Gigabit Ethernet
Frame Resolution	1936x1456
Sensor Name	SONY ICX674
Sensor Type	Mono16
Pixel Bit Depth	14
Sensor Diagonal (mm)	10.9977
Pixel Dimensions (μm)	4.54x4.54
Number of Taps	4
Dark Current Compensation	Yes

Test Settings	
ROI	
x_start	500
y_start	500
x_length	100
y_length	100
Other	
Acquisition Mode	Freerun
Gain	0
Exposure Range (μs)	100 - 50000
Number of Data Points	30
Binning X	1
Binning Y	1
Housing Temperature (°C)	

Test Settings (Continued)	
Filter Wavelength (nm)	Light Intensity (W/m ²)
546	6.5795E-03

Additional Notes	
None	

Warnings	
-None	

Measurement Data ($\lambda=546\text{nm}$)									
Image #	T_{exp} (s)	$\mu_{y,\text{dark}}$ (DN)	$\sigma_{y,\text{dark}}^2$ (DN)	μ_y (DN)	σ_y^2 (DN)	μ_p (Photons)	$\mu_y - \mu_{y,\text{dark}}$ (DN)	$\sigma_y^2 - \sigma_{y,\text{dark}}^2$ (DN)	$\text{SNR}_y(\mu_p)$
1	0.000100	214.403	71.020	245.294	106.892	37.228	30.891	35.873	2.98789055
2	0.001821	213.744	71.190	792.230	652.963	677.800	578.486	581.773	22.6385592
3	0.003541	214.175	73.235	1339.227	1226.037	1318.372	1125.052	1152.803	32.13074989
4	0.005262	213.011	69.255	1889.571	1723.624	1958.944	1676.560	1654.368	40.38293418
5	0.006983	213.546	72.270	2438.099	2267.254	2599.517	2224.554	2194.983	46.71892216
6	0.008703	212.519	69.759	2983.483	2831.939	3240.089	2770.964	2762.180	52.07016473
7	0.010424	213.157	71.507	3525.253	3471.885	3880.661	3312.096	3400.379	56.21085603
8	0.012145	213.319	70.901	4072.219	3887.729	4521.233	3858.900	3816.828	61.88929212
9	0.013866	213.121	71.575	4616.665	4561.859	5161.805	4403.544	4490.285	65.19756555
10	0.015586	213.971	70.382	5157.648	5001.448	5802.378	4943.677	4931.066	69.9040261
11	0.017307	213.622	72.264	5697.922	5481.250	6442.950	5484.301	5408.986	74.07667007
12	0.019028	213.570	70.349	6239.712	6107.726	7083.522	6026.142	6037.377	77.1080285
13	0.020748	214.179	70.841	6779.413	6576.736	7724.094	6565.234	6505.895	80.9552507
14	0.022469	213.399	69.627	7317.822	7090.293	8364.666	7104.423	7020.667	84.3716822
15	0.024190	214.379	69.895	7854.275	7761.374	9005.239	7639.896	7691.479	86.71977443
16	0.025910	213.455	69.629	8394.617	8205.391	9645.811	8181.162	8135.762	90.31613337
17	0.027631	214.086	74.218	8927.985	8966.414	10286.383	8713.899	8892.196	92.02443328
18	0.029352	214.103	71.569	9463.586	9336.192	10926.955	9249.483	9264.624	95.7265862
19	0.031072	213.314	70.632	10000.648	10056.484	11567.528	9787.334	9985.852	97.59809381
20	0.032793	213.687	71.481	10540.309	10400.744	12208.100	10326.623	10329.262	101.2572453
21	0.034514	212.698	72.461	11081.141	10906.654	12848.672	10868.443	10834.192	104.0690493
22	0.036234	213.773	69.925	11620.139	11904.876	13489.244	11406.366	11834.951	104.5405739
23	0.037955	213.570	70.389	12162.902	12370.742	14129.816	11949.332	12300.352	107.4349921
24	0.039676	212.959	70.669	12706.062	13134.885	14770.389	12493.103	13064.216	109.0077052
25	0.041397	213.567	71.316	13250.609	13955.105	15410.961	13037.042	13883.790	110.3602058
26	0.043117	213.952	69.681	13795.709	13778.543	16051.533	13581.757	13708.862	115.7055784
27	0.044838	213.406	71.039	14337.322	14536.474	16692.105	14123.916	14465.434	117.1454985
28	0.046559	213.779	70.702	14880.715	14923.668	17332.678	14666.935	14852.967	120.0608974
29	0.048279	213.074	71.439	15415.566	16007.221	17973.250	15202.493	15935.781	120.1591463

Measurement Data									
Image #	T_{exp} (s)	$\mu_{y,\text{dark}}$ (DN)	$\sigma^2_{y,\text{dark}}$ (DN)	μ_y (DN)	σ^2_y (DN)	μ_p (Photons)	$\mu_y - \mu_{y,\text{dark}}$ (DN)	$\sigma^2_y - \sigma^2_{y,\text{dark}}$ (DN)	$\text{SNR}_y(\mu_p)$
30	0.050000	214.129	71.168	15943.255	15589.687	18613.822	15729.126	15518.519	125.97544

Model Parameters ($\lambda=546\text{nm}$)			
Parameter	Symbol	Units	Value
Inverse of Overall System Gain	$1/K$	e-/DN	0.9857
Total Quantum Efficiency	$\eta(\lambda)$	%	83.5134
Dark Current	N_d	e- / s	0.0000
Dark Noise for Exposure Time Zero	σ_{d0}	e-	8.3152
Full Well Capacity	$\mu_{e,sat}$	e-	15504.8561
Absolute Sensitivity Threshold	$\mu_{p,min}(\lambda)$	p~	9.9567
Dynamic Range	$DYN_{in} = DYN_{out}$	1	1864.6432
Signal to Noise Ratio	SNR	dB	65.4119
Signal to Noise Ratio at Saturation	$SNR_y(\mu_{p,sat})$	1	125.8750
Standard Deviation of Spatial Gain Noise	S_g	%	
Standard Deviation of Spatial Offset Noise	σ_o	e-	
PRNU ₁₂₈₈		%	
DSNU ₁₂₈₈		e-	

Extended Photon Transfer Curve Graphs ($\lambda=546\text{nm}$)

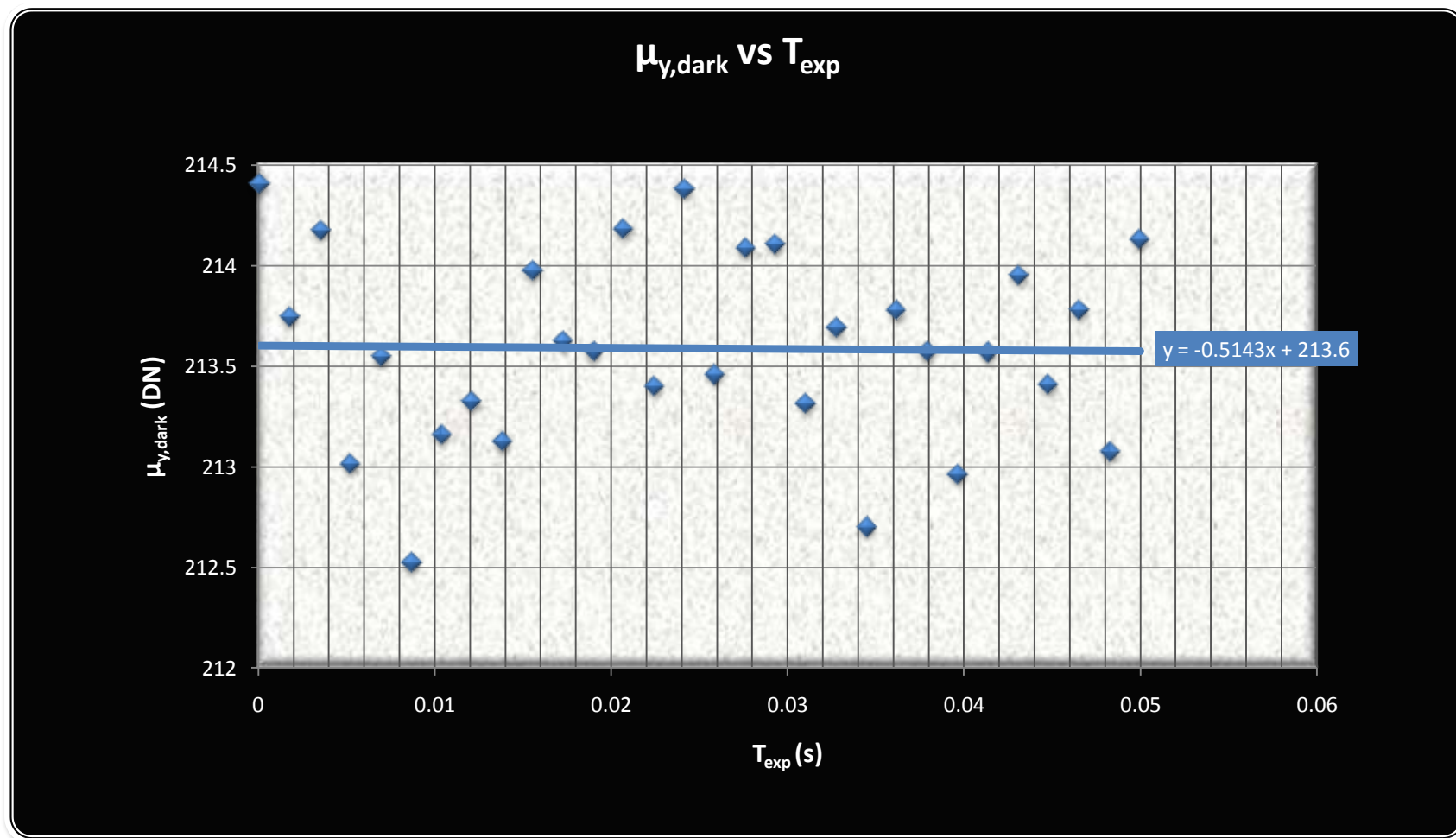


Figure 1: Mean gray value of the dark signal in [DN] versus exposure time in [s].

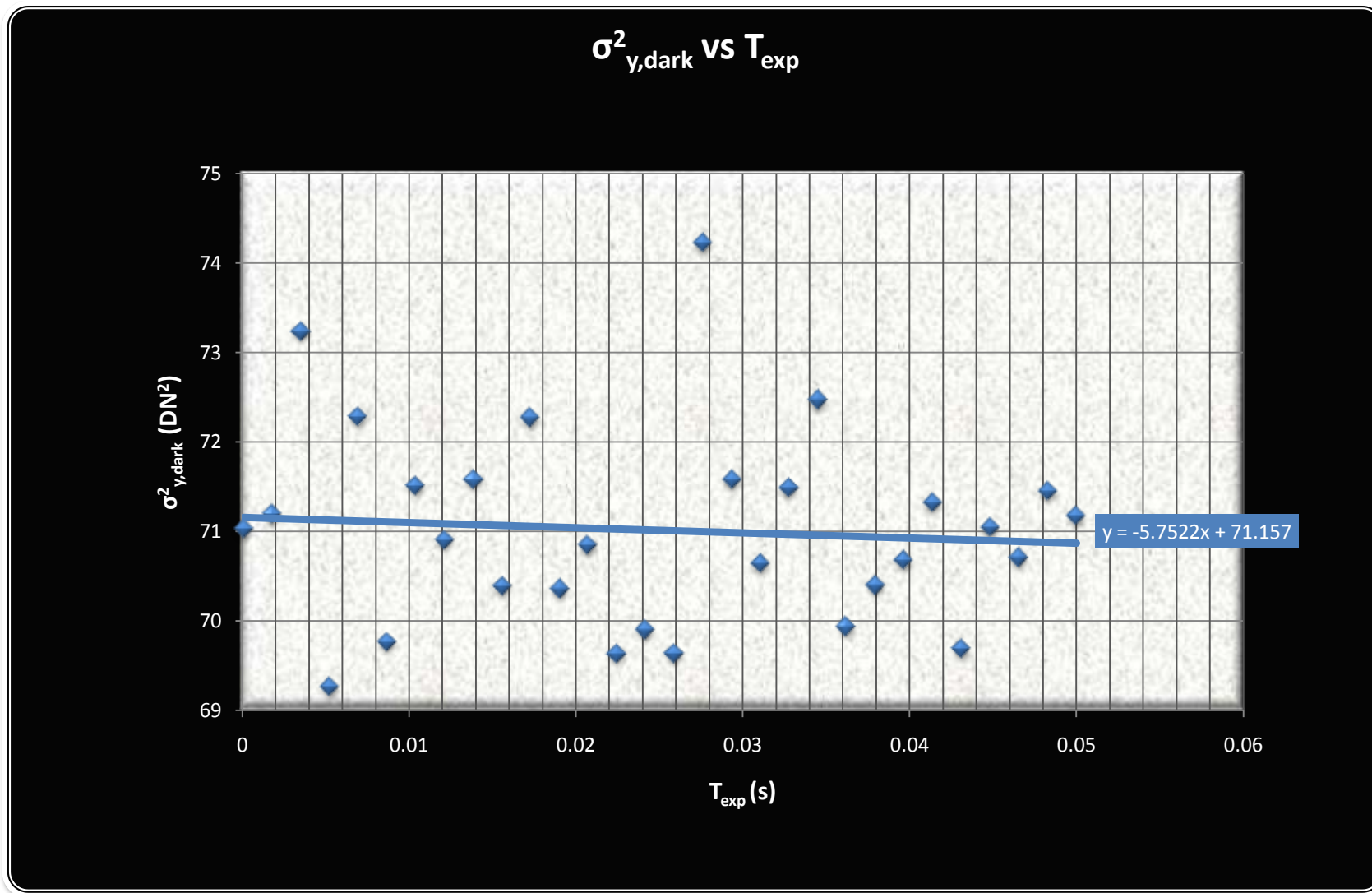


Figure 2: Variance of the gray values' temporal distribution in dark in $[\text{DN}^2]$ versus exposure time in $[\text{s}]$.

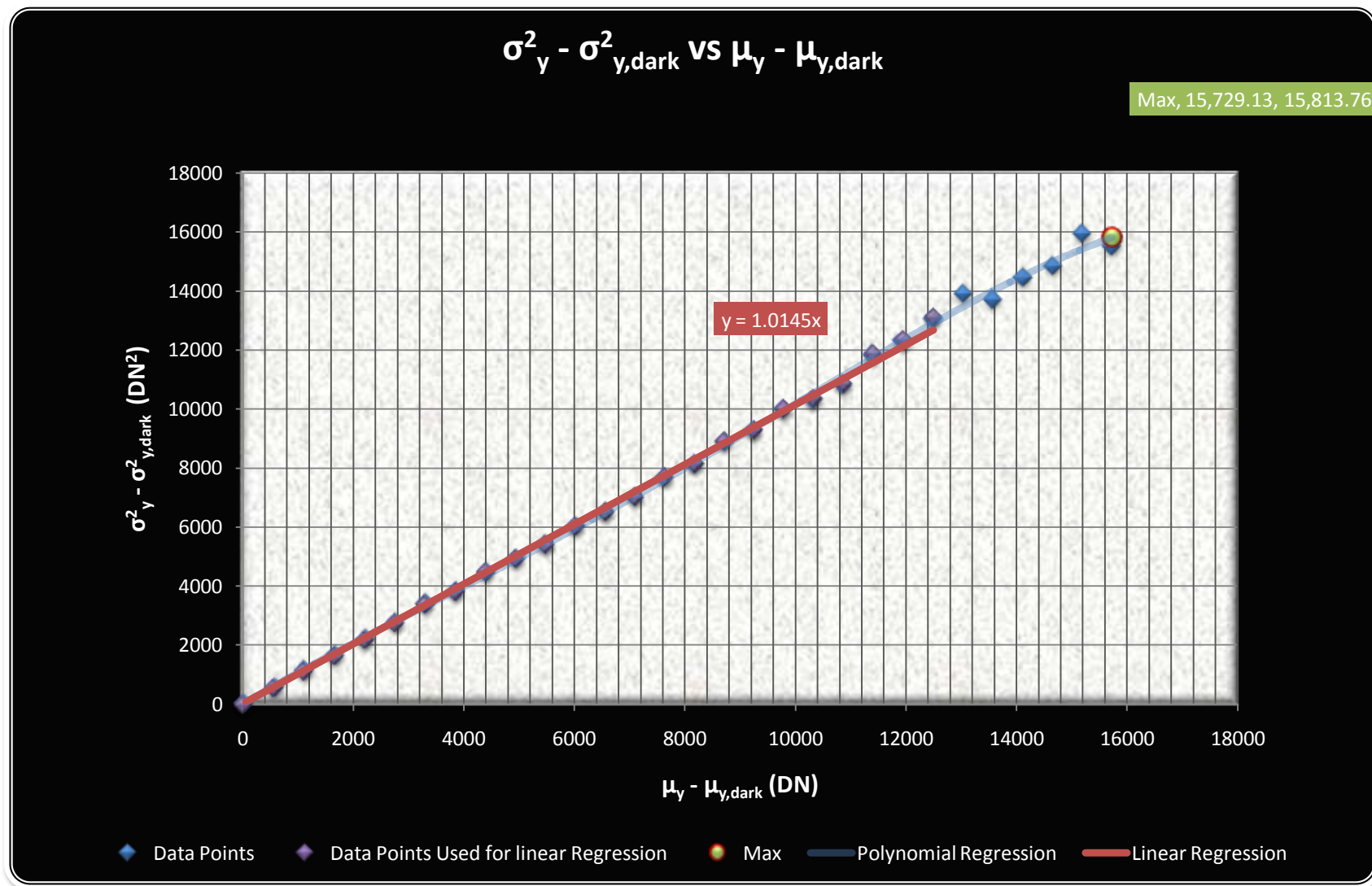


Figure 3: Light induced variance of temporal distribution of gray values in $[\text{DN}^2]$ versus light induced mean gray value in $[\text{DN}]$.

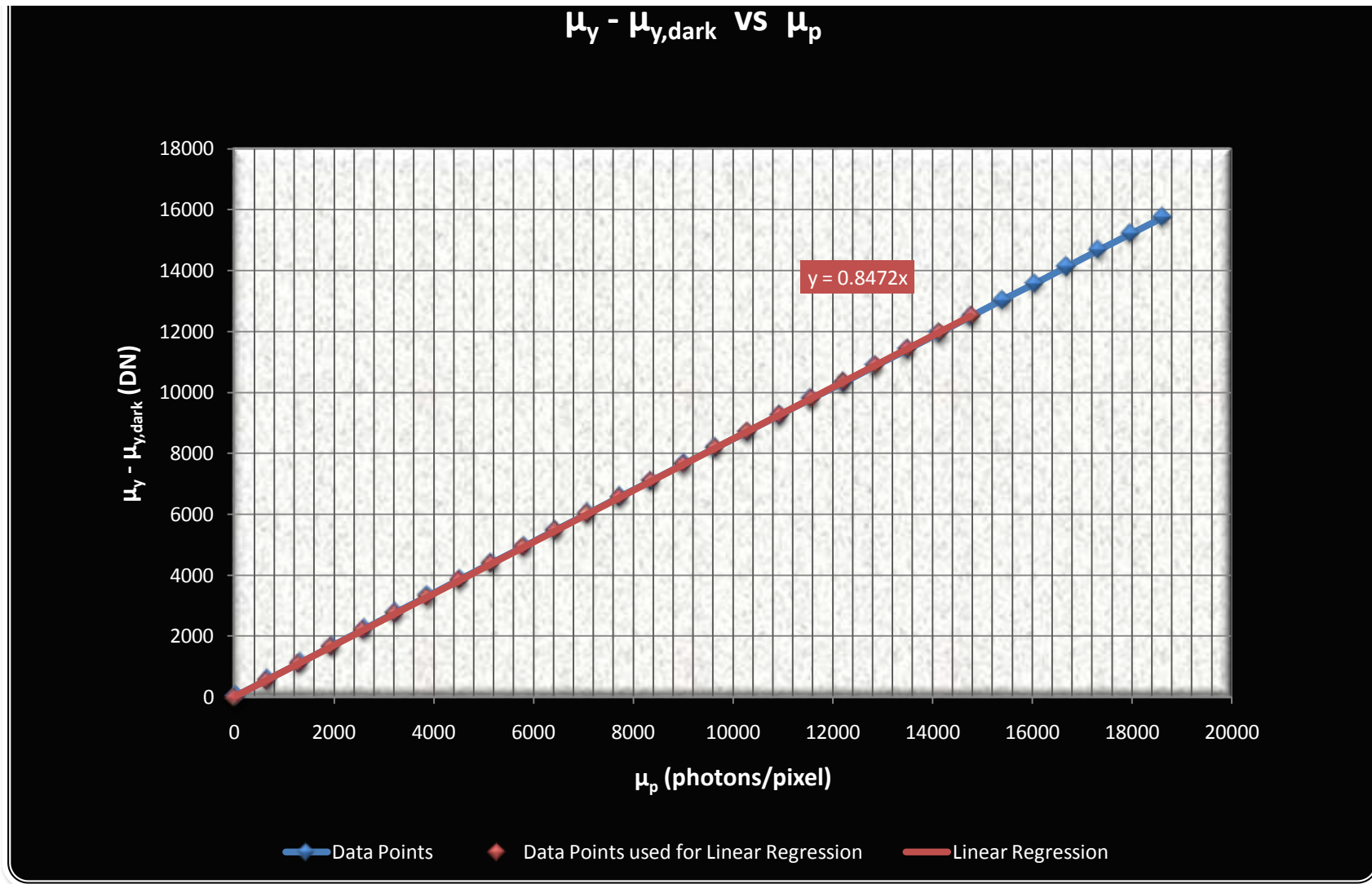


Figure 4: Light induced mean gray value in [DN] versus the number of photons collected in a pixel during exposure time in [p~].

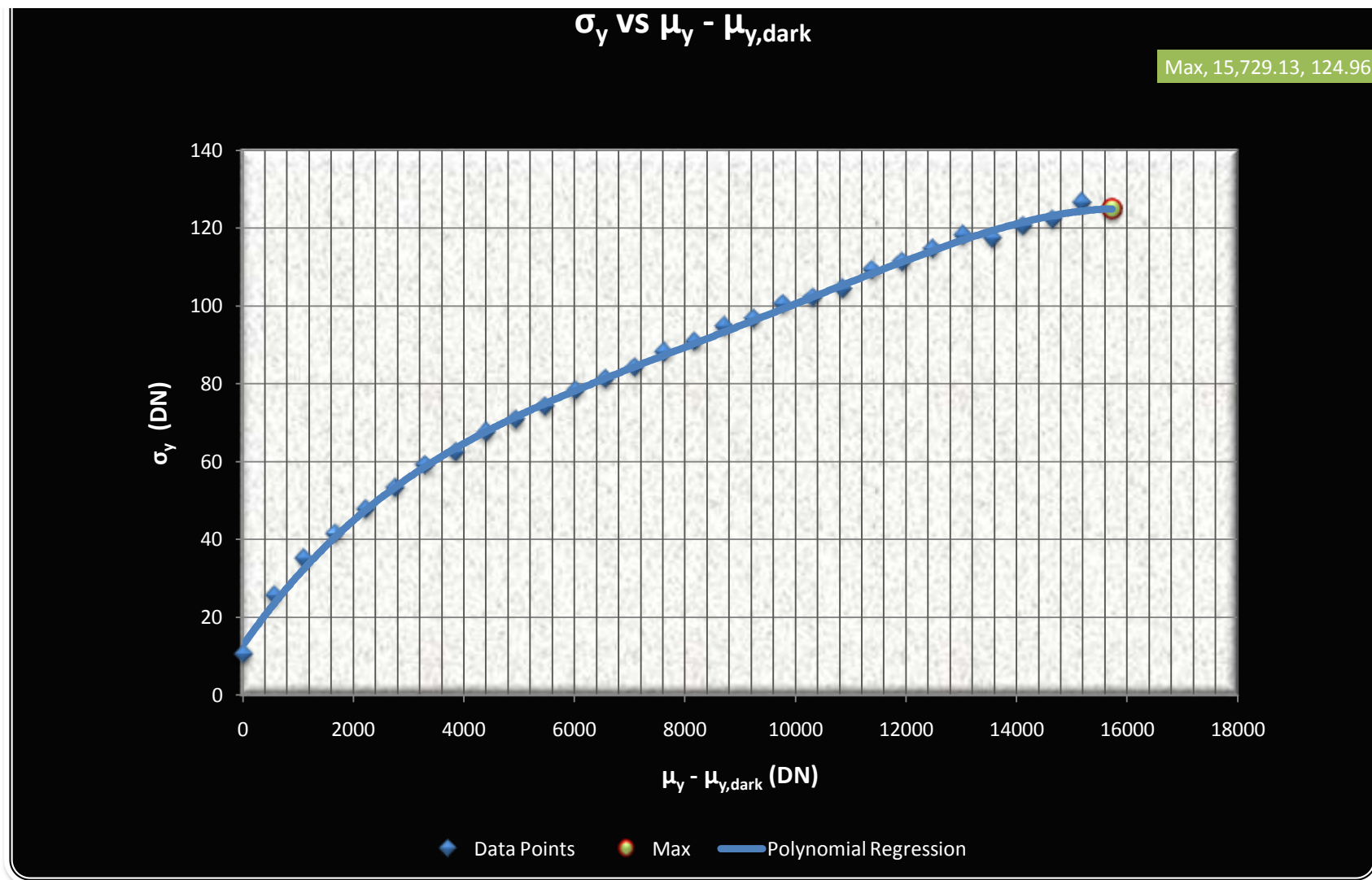


Figure 5: Standard deviation of grey value in [DN] versus the light induced mean gray value in [DN].

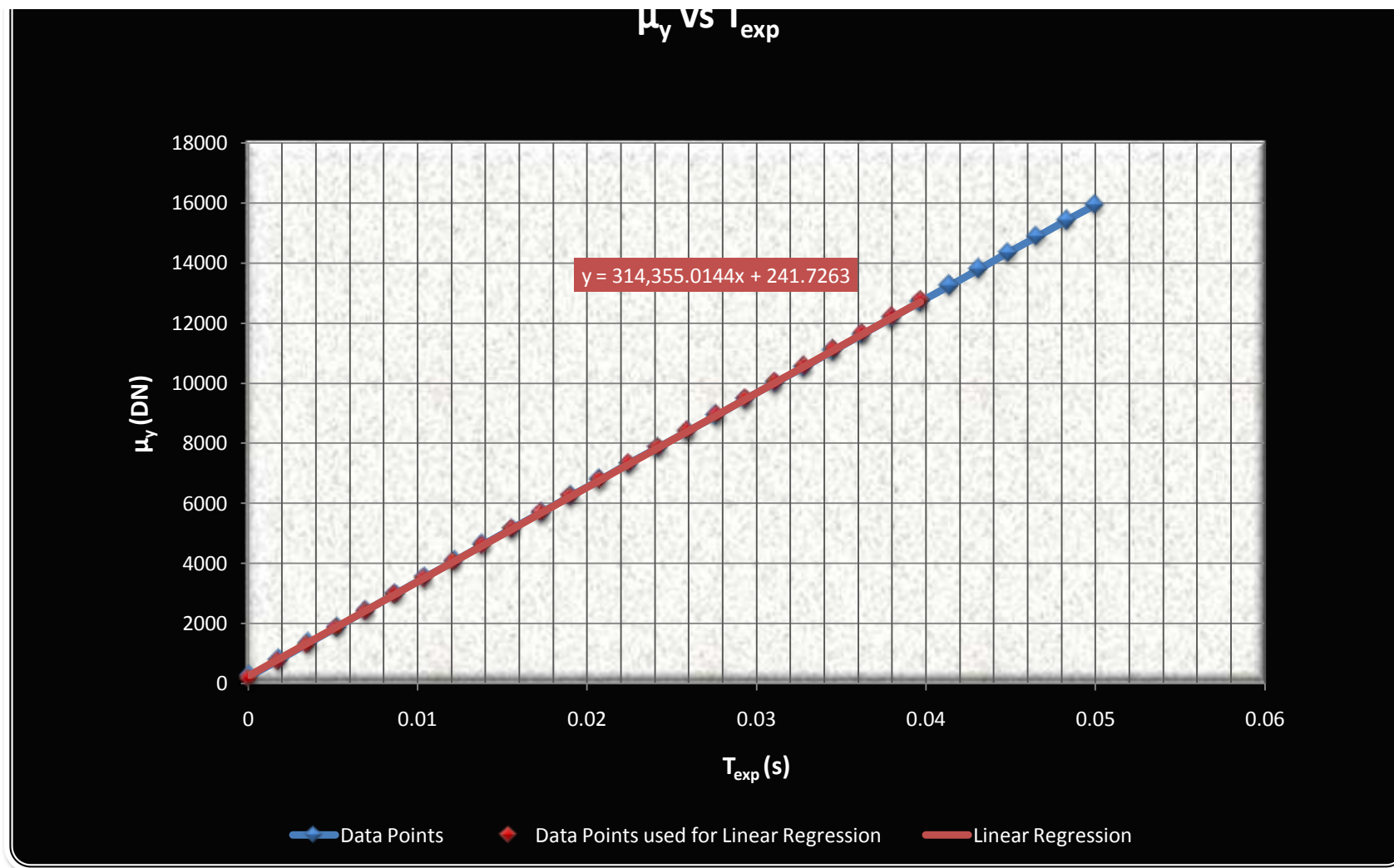


Figure 6: Mean gray value in [DN] versus set exposure time [s].

μ_y VS μ_p

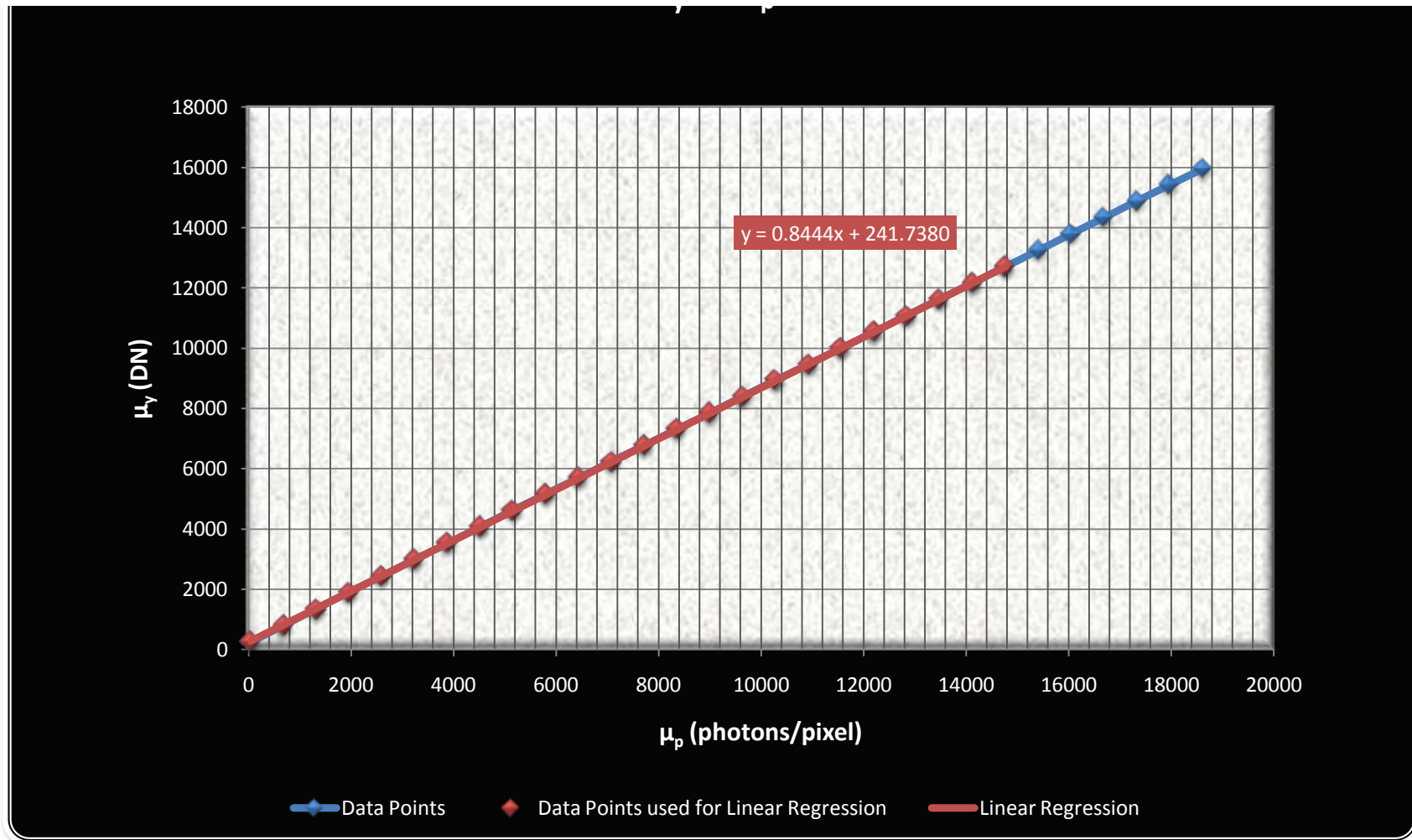


Figure 7: Mean gray value in [DN] versus the number of photons collected in a pixel during exposure time in [p~]

σ_y^2 vs T_{exp}

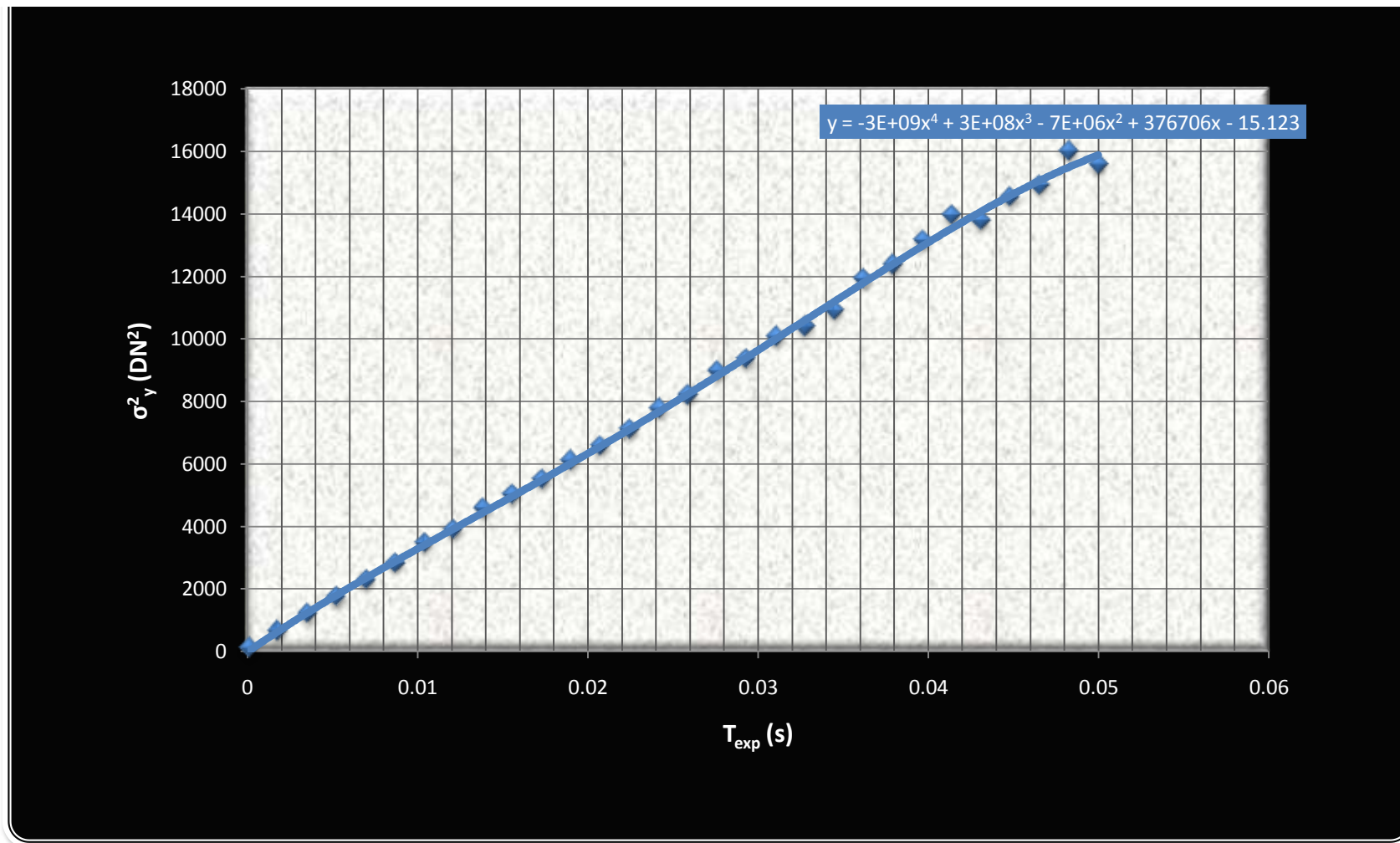


Figure 8: Variance of the gray values' temporal distribution in $[\text{DN}^2]$ versus exposure time in $[\text{s}]$.

σ_y^2 vs μ_p

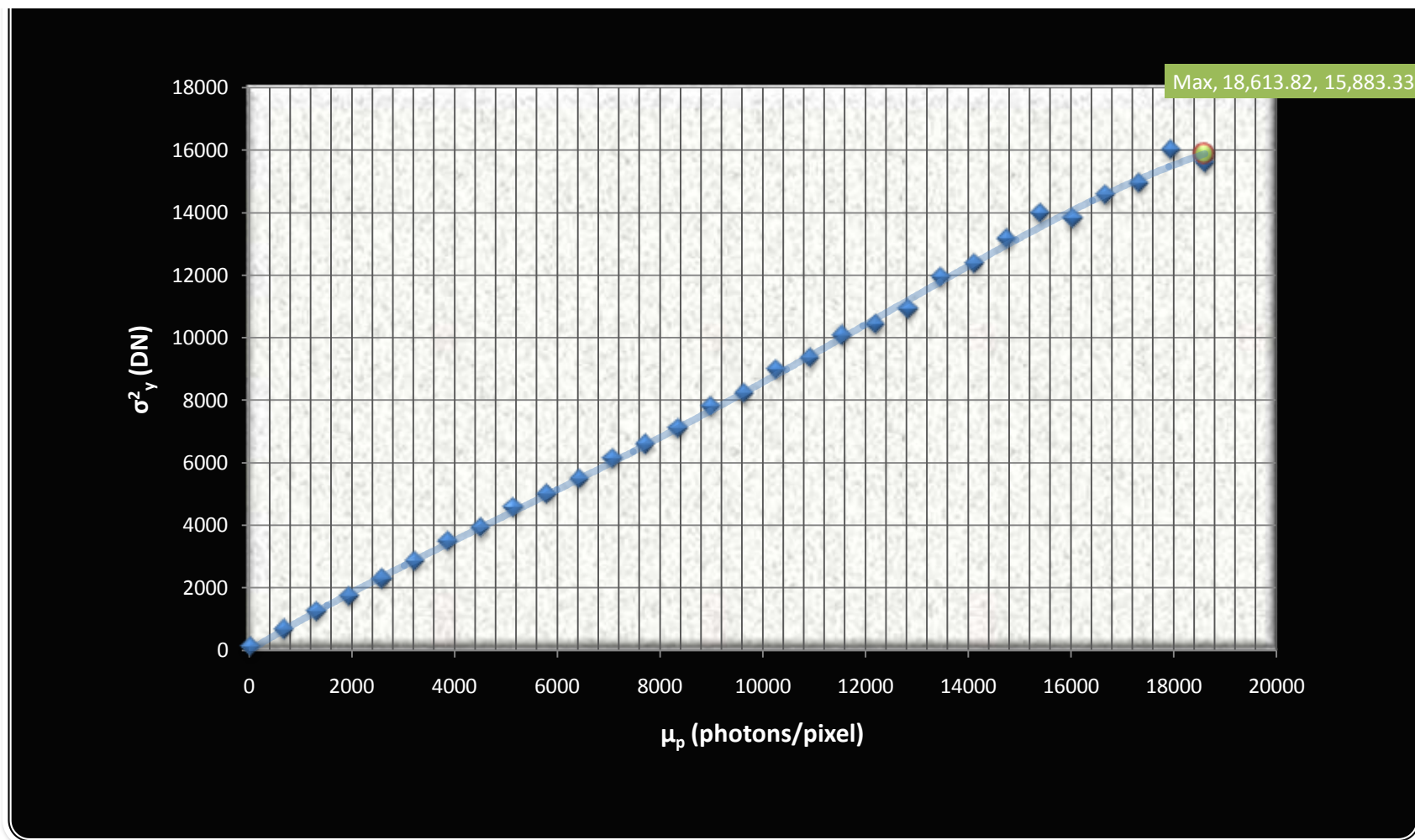


Figure 9: Variance of the temporal distribution of gray values in [DN²] versus the number of photons collected in a pixel during exposure time in [p~].