

EMVA 1288 Standard Specification Sheet

Camera Information	
Vendor Name	Prosilica Inc.
Camera Name	GX2300
UID	5406
Serial Number	02-2406A-06000
Part Number	2406
Part Version	65
Interface ID	65540
Interface Type	Gigabit Ethernet
Frame Resolution	2336x1752
Sensor Name	KODAK KAI-04050
Sensor Type	Mono16
Pixel Bit Depth	12
Sensor Diagonal (mm)	16.06
Pixel Dimensions (μm)	5.5x5.5
Number of Taps	4
Dark Current Compensation	Yes

Test Settings	
ROI	
x_start	534
y_start	388
x_length	100
y_length	100
Other	
Acquisition Mode	Freerun
Gain	2
Exposure Range (μs)	100 - 40000
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	1.2164E-02

Additional Notes
CDS GAIN = 3dB VGA GAIN = 2

Warnings
-None

Measurement Data ($\lambda=546\text{nm}$)									
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)	$\text{SNR}_y(\mu_p)$
1	0.000100	32.875	13.025	42.150	14.327	101.009	9.276	1.302	2.450551076
2	0.001476	32.730	12.904	173.385	41.961	1490.755	140.654	29.057	21.71351579
3	0.002852	32.784	12.506	305.615	68.094	2880.500	272.831	55.588	33.06264077
4	0.004228	32.873	12.471	437.964	97.561	4270.246	405.091	85.090	41.01233242
5	0.005603	32.920	12.346	571.022	121.353	5659.992	538.102	109.007	48.84717727
6	0.006979	32.926	12.884	704.153	154.599	7049.737	671.226	141.714	53.98414793
7	0.008355	32.847	12.691	837.305	181.062	8439.483	804.458	168.371	59.78455716
8	0.009731	32.743	12.928	970.031	205.099	9829.228	937.288	192.171	65.4472662
9	0.011107	32.850	12.538	1103.148	238.546	11218.974	1070.298	226.008	69.29768487
10	0.012483	32.921	12.934	1236.216	262.570	12608.720	1203.295	249.636	74.25912167
11	0.013859	32.912	12.596	1369.002	278.733	13998.465	1336.089	266.136	80.02792878
12	0.015234	32.902	12.525	1501.278	316.296	15388.211	1468.376	303.771	82.56395469
13	0.016610	32.929	12.403	1634.038	333.418	16777.956	1601.109	321.014	87.68528754
14	0.017986	32.797	12.228	1766.694	363.002	18167.702	1733.897	350.774	91.00570038
15	0.019362	32.840	12.564	1898.410	392.922	19557.448	1865.571	380.358	94.11494128
16	0.020738	32.878	12.809	2030.902	408.633	20947.193	1998.024	395.825	98.84023516
17	0.022114	32.753	12.306	2163.247	446.320	22336.939	2130.495	434.014	100.8456163
18	0.023490	32.884	12.456	2295.767	483.841	23726.685	2262.882	471.385	102.8751856
19	0.024866	32.933	12.359	2428.239	496.868	25116.430	2395.306	484.510	107.4584041
20	0.026241	32.880	12.275	2561.590	532.826	26506.176	2528.710	520.551	109.5484824
21	0.027617	33.000	12.646	2694.884	558.422	27895.921	2661.884	545.776	112.6439343
22	0.028993	32.663	12.549	2828.558	604.530	29285.667	2795.895	591.982	113.7134736
23	0.030369	32.988	12.645	2964.340	633.663	30675.413	2931.353	621.018	116.449861
24	0.031745	33.041	12.852	3101.225	666.110	32065.158	3068.184	653.258	118.8798752
25	0.033121	32.978	12.504	3238.693	705.216	33454.904	3205.715	692.713	120.7156948
26	0.034497	32.834	12.687	3378.384	772.822	34844.649	3345.550	760.135	120.3449
27	0.035872	32.861	12.769	3517.443	799.585	36234.395	3484.581	786.816	123.2304941
28	0.037248	32.738	12.308	3659.375	828.130	37624.141	3626.637	815.822	126.0244224
29	0.038624	32.755	12.666	3800.694	878.297	39013.886	3767.939	865.631	127.1403051

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	0.040000	32.801	12.435	3942.069	907.713	40403.632	3909.268	895.278	129.75412

Model Parameters ($\lambda=546\text{nm}$)			
Parameter	Symbol	Units	Value
Inverse of Overall System Gain	$1/K$	e-/DN	4.8332
Total Quantum Efficiency	$\eta(\lambda)$	%	46.1351
Dark Current	N_d	e- / s	0.0000
Dark Noise for Exposure Time Zero	σ_{d0}	e-	17.2170
Full Well Capacity	$\mu_{e,sat}$	e-	18894.2840
Absolute Sensitivity Threshold	$\mu_{p,min}(\lambda)$	p~	37.3186
Dynamic Range	$DYN_{in} = DYN_{out}$	1	1097.4217
Signal to Noise Ratio	SNR	dB	60.8075
Signal to Noise Ratio at Saturation	$SNR_y(\mu_{p,sat})$	1	129.8479
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 ($\lambda=546\text{nm}$)

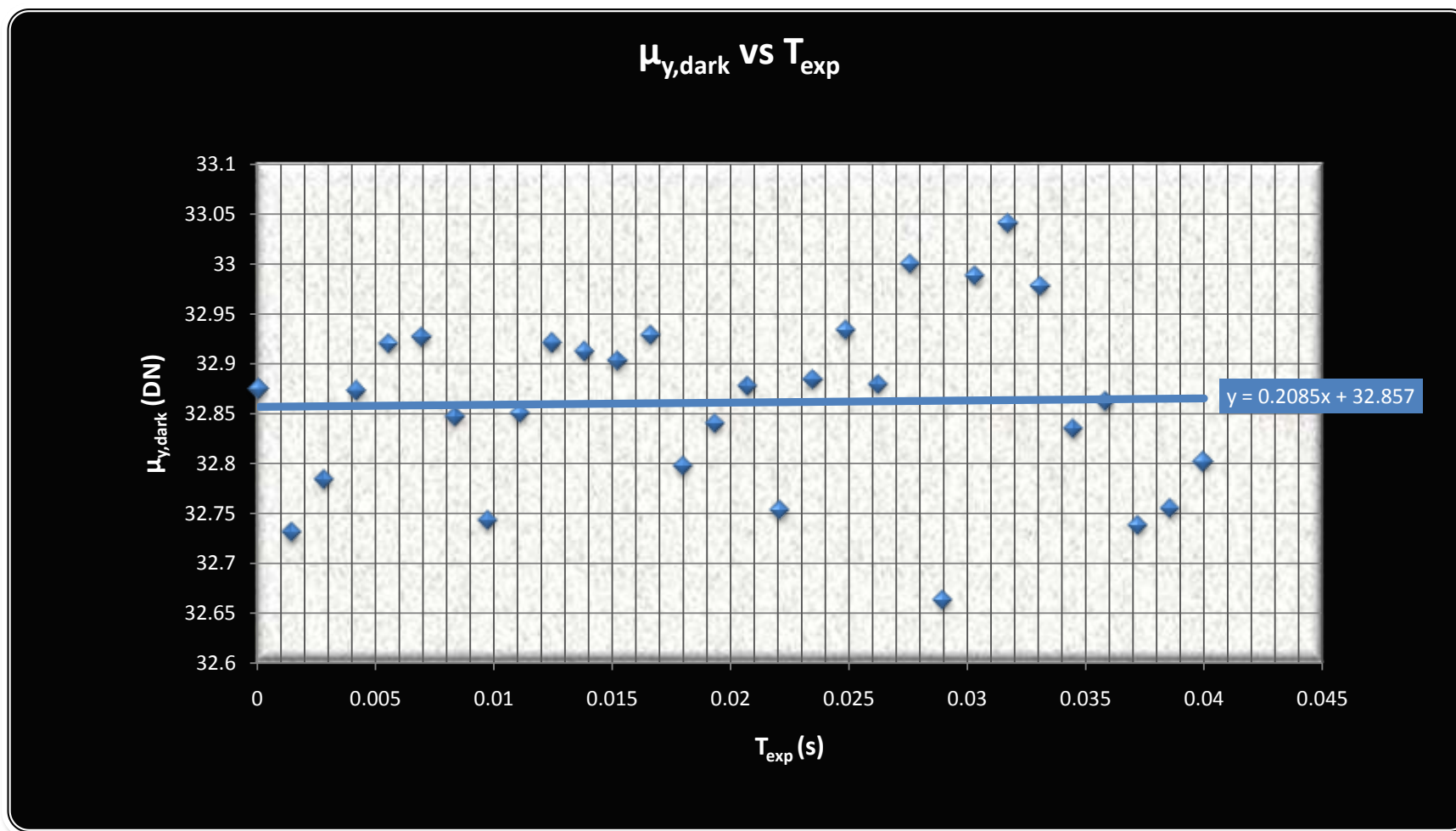


Figure 1: Mean gray value of the dark signal in [DN] versus exposure time in [s].

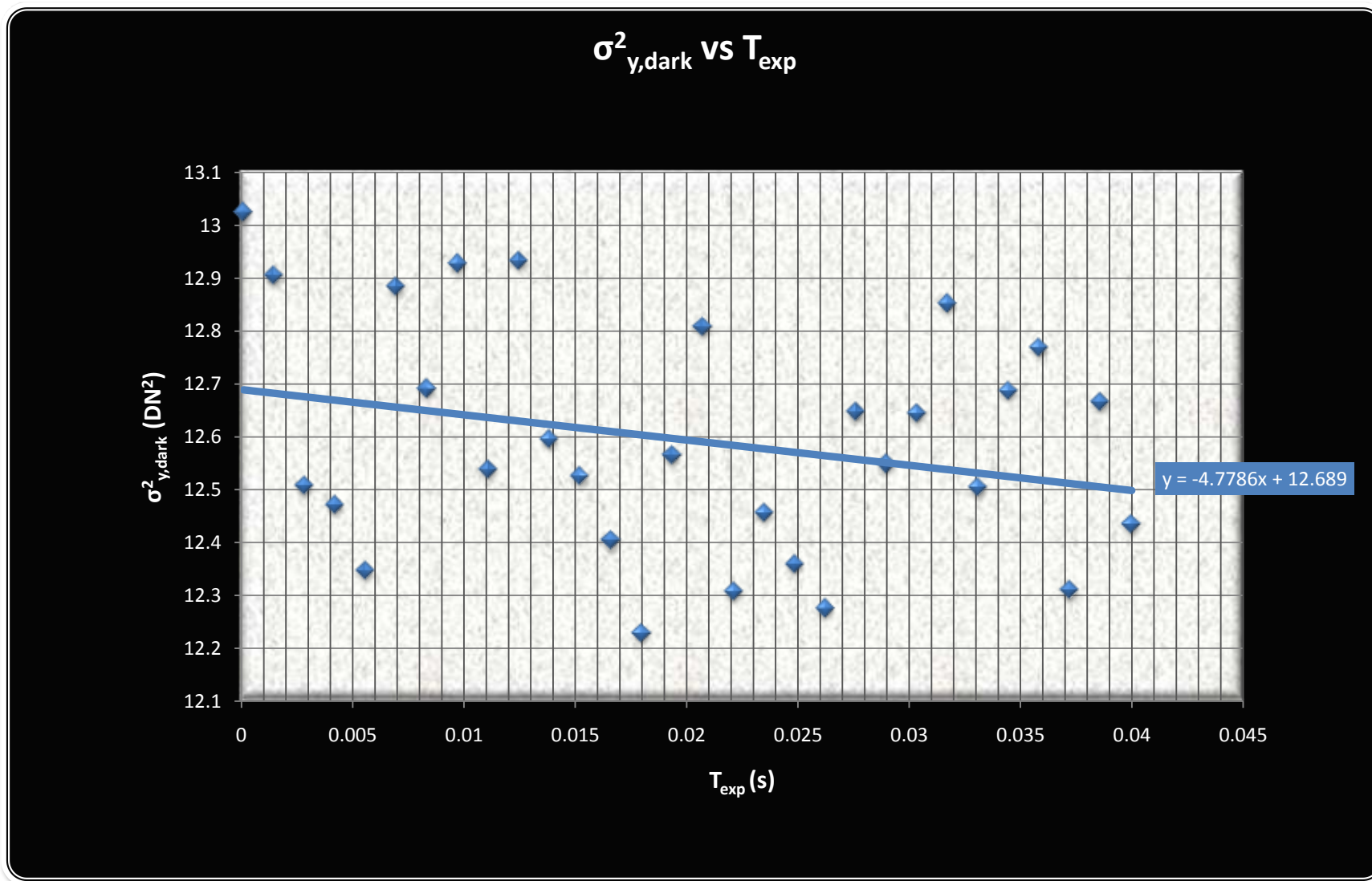


Figure 2: Variance of the gray values' temporal distribution in dark in $[\text{DN}^2]$ versus exposure time in $[\text{s}]$.

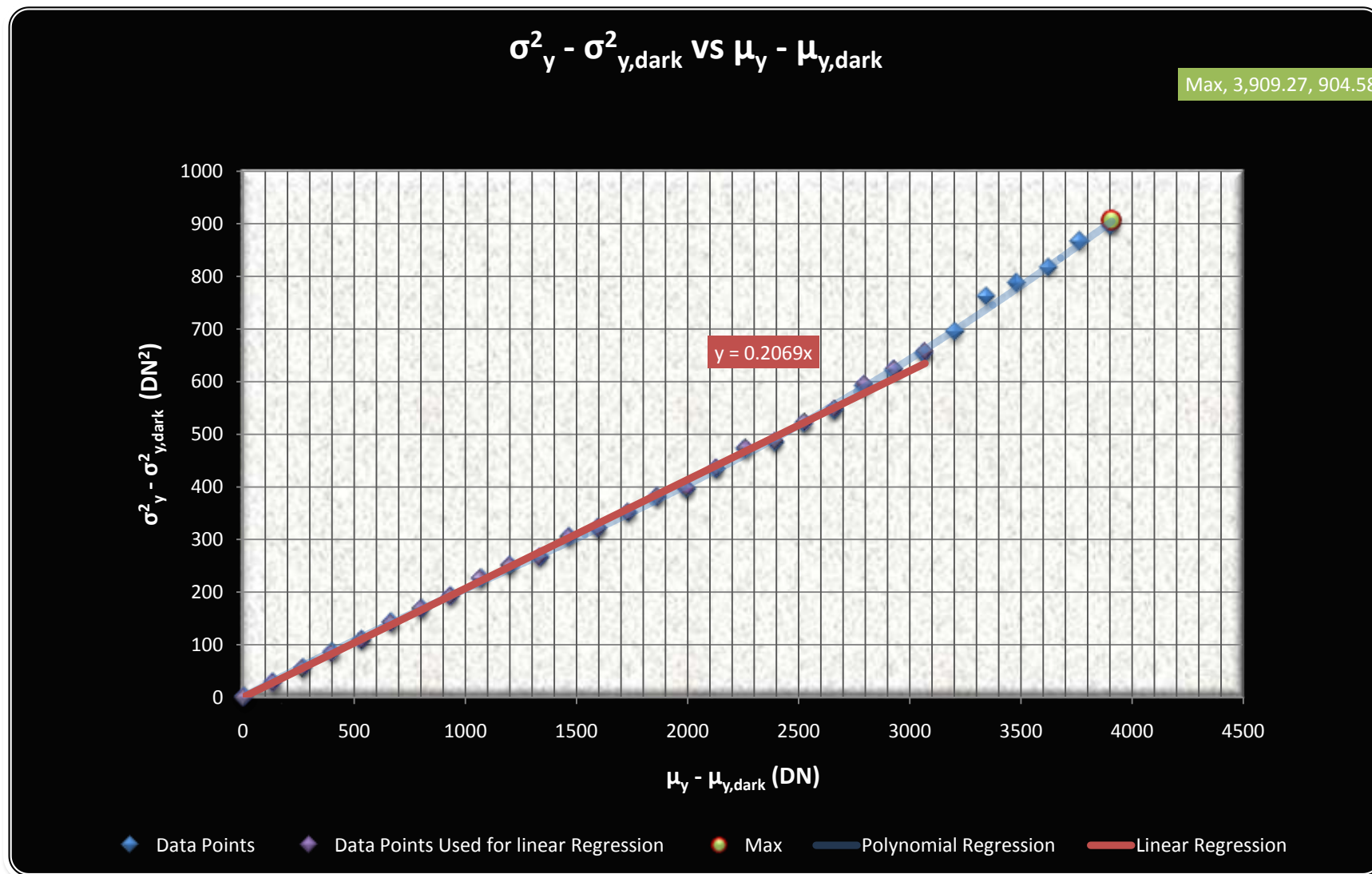


Figure 3: Light induced variance of temporal distribution of gray values in [DN²] versus light induced mean gray value in [DN].

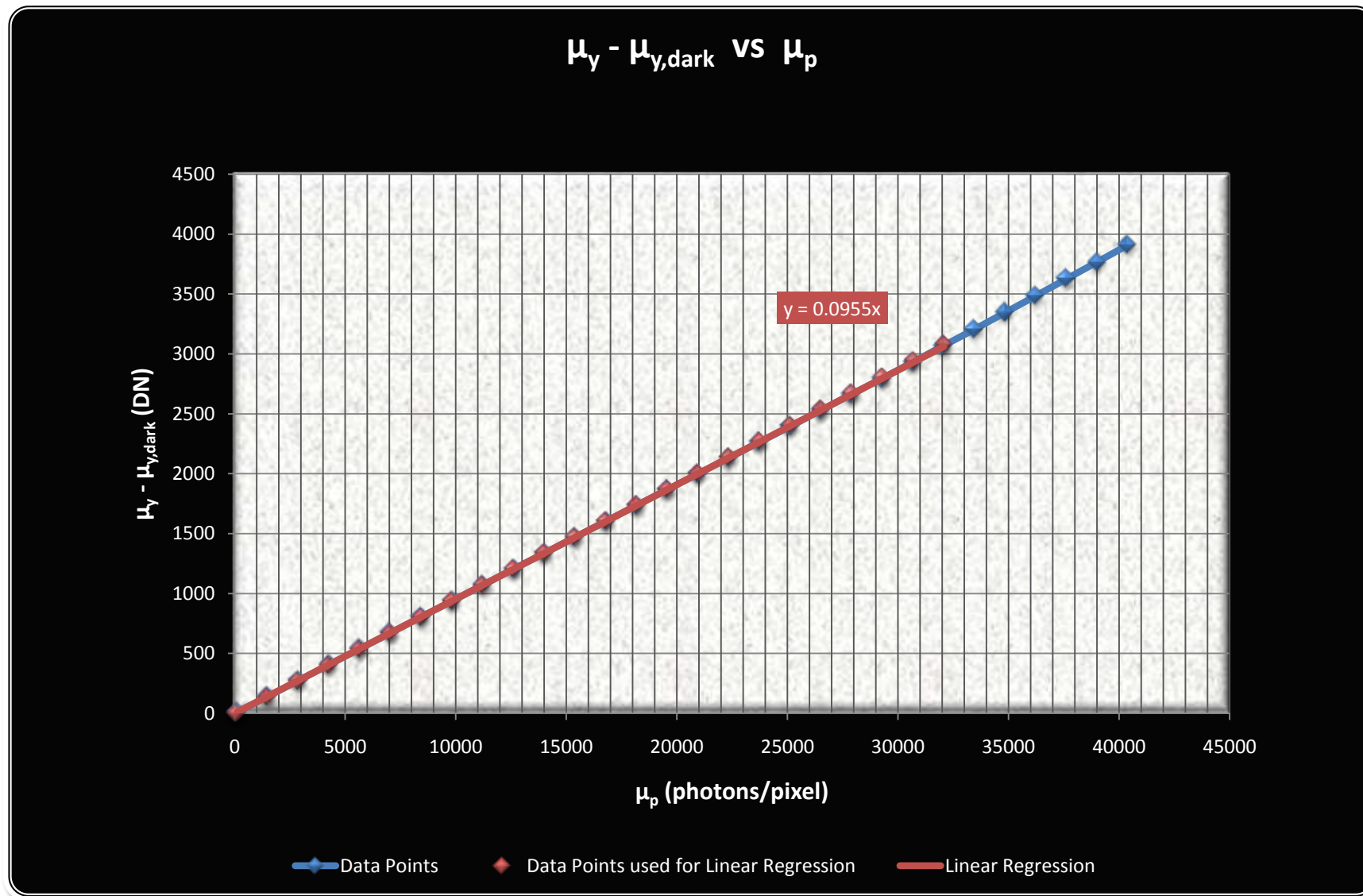


Figure 4: Light induced mean gray value in [DN] versus the number of photons collected in a pixel during exposure time in [p-].

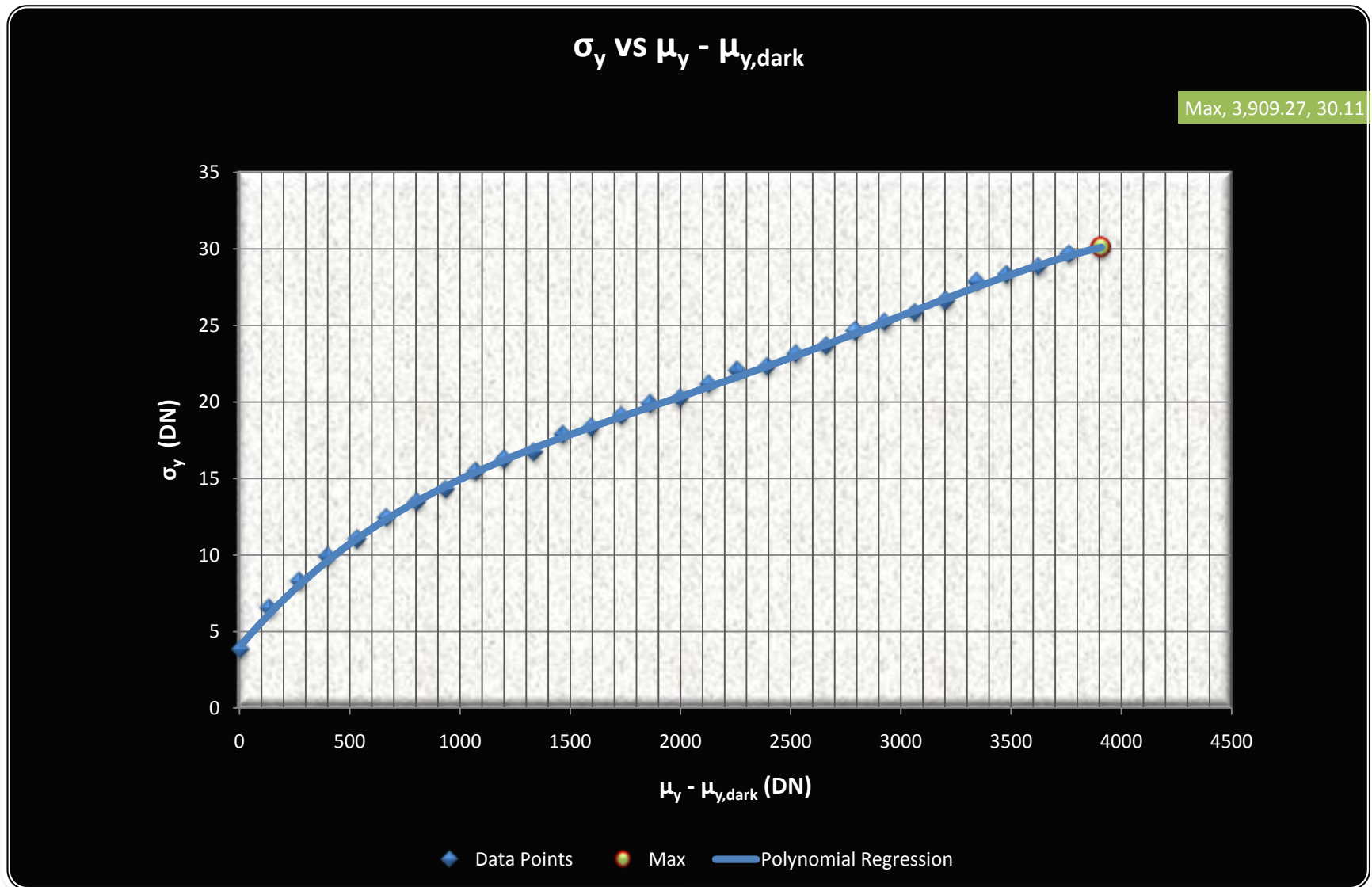


Figure 5: Standard deviation of grey value in [DN] versus the light induced mean gray value in [DN].

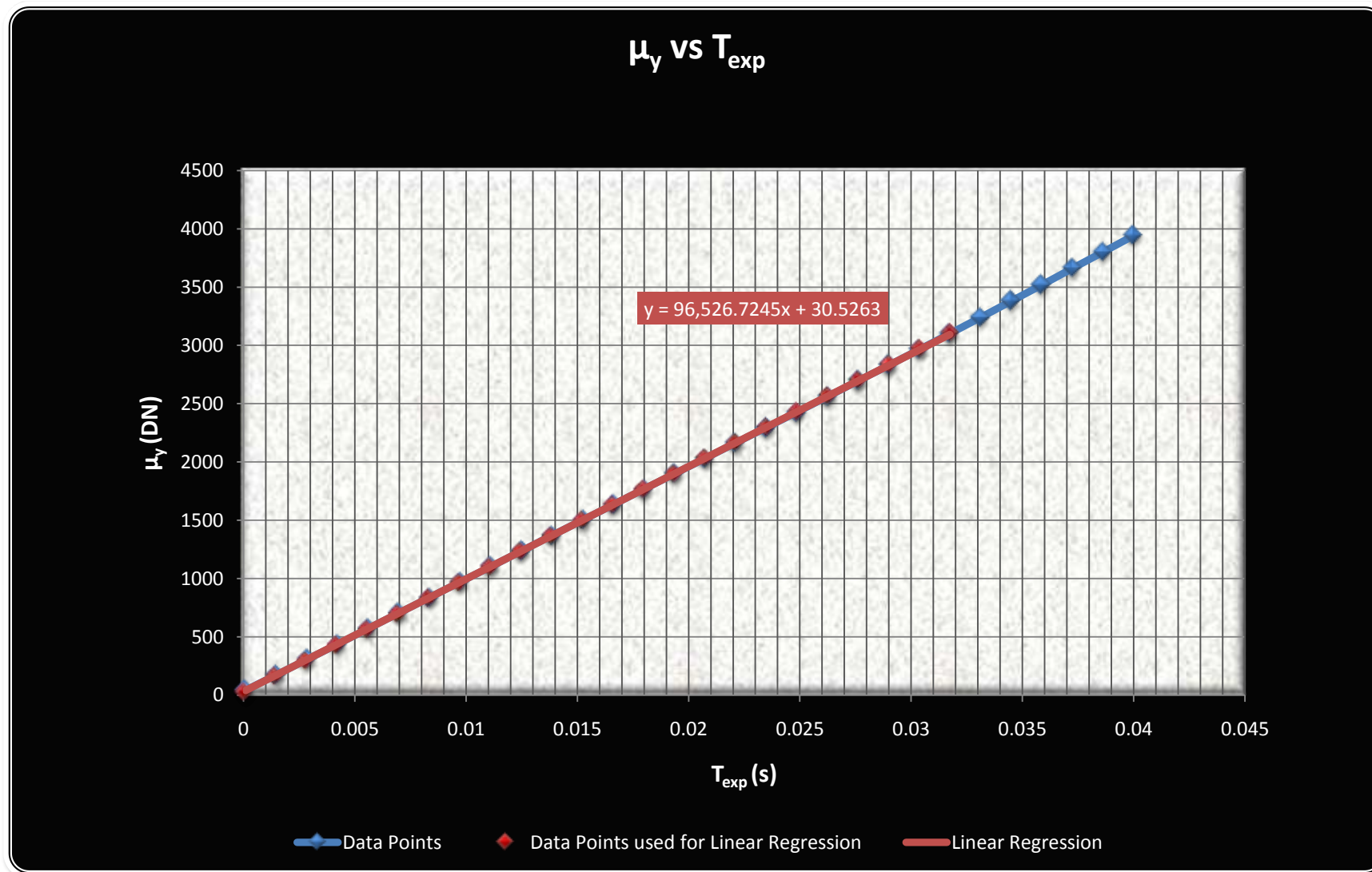


Figure 6: Mean gray value in [DN] versus set exposure time [s].

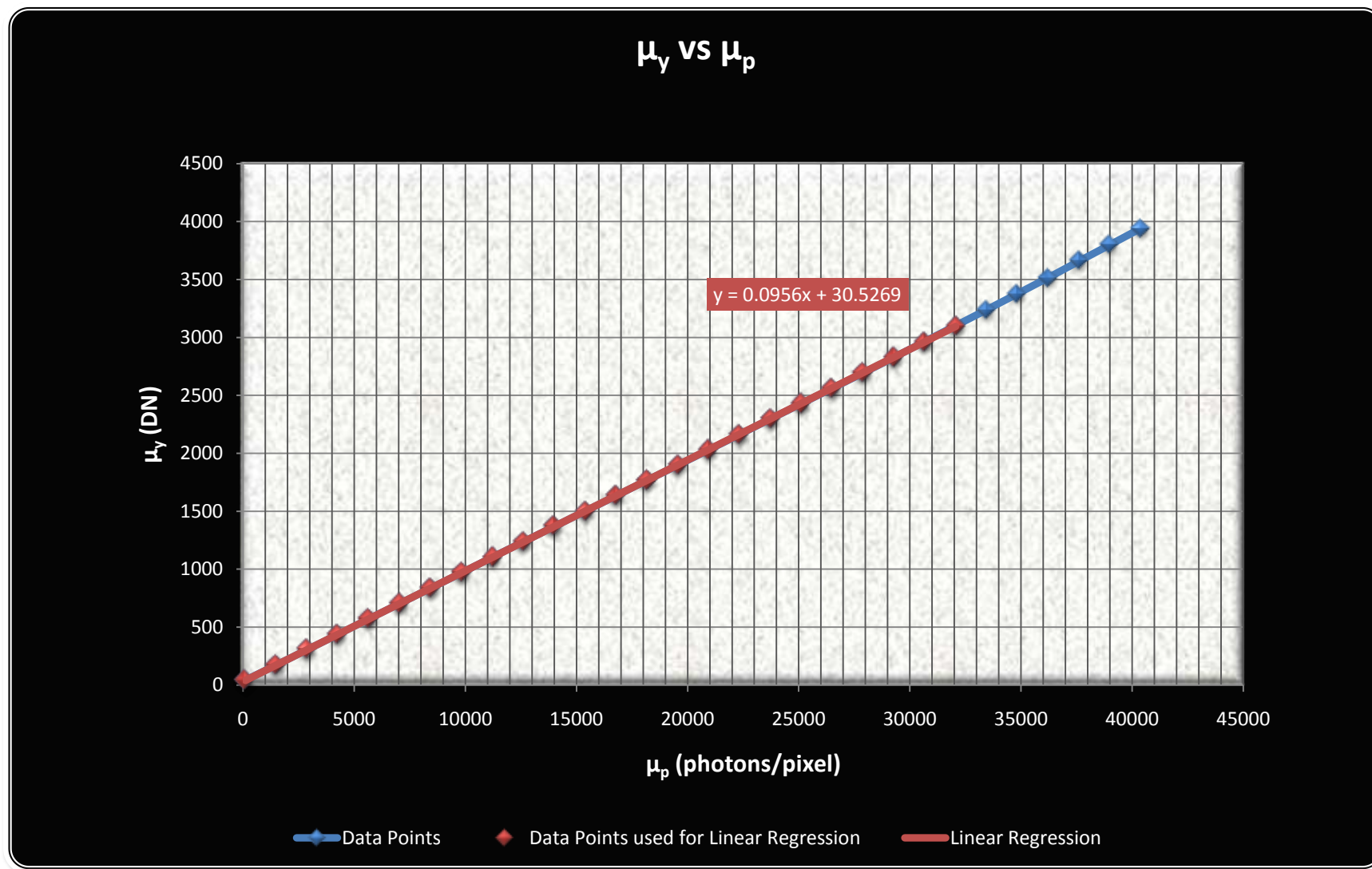


Figure 7: Mean gray value in [DN] versus the number of photons collected in a pixel during exposure time in [p.]

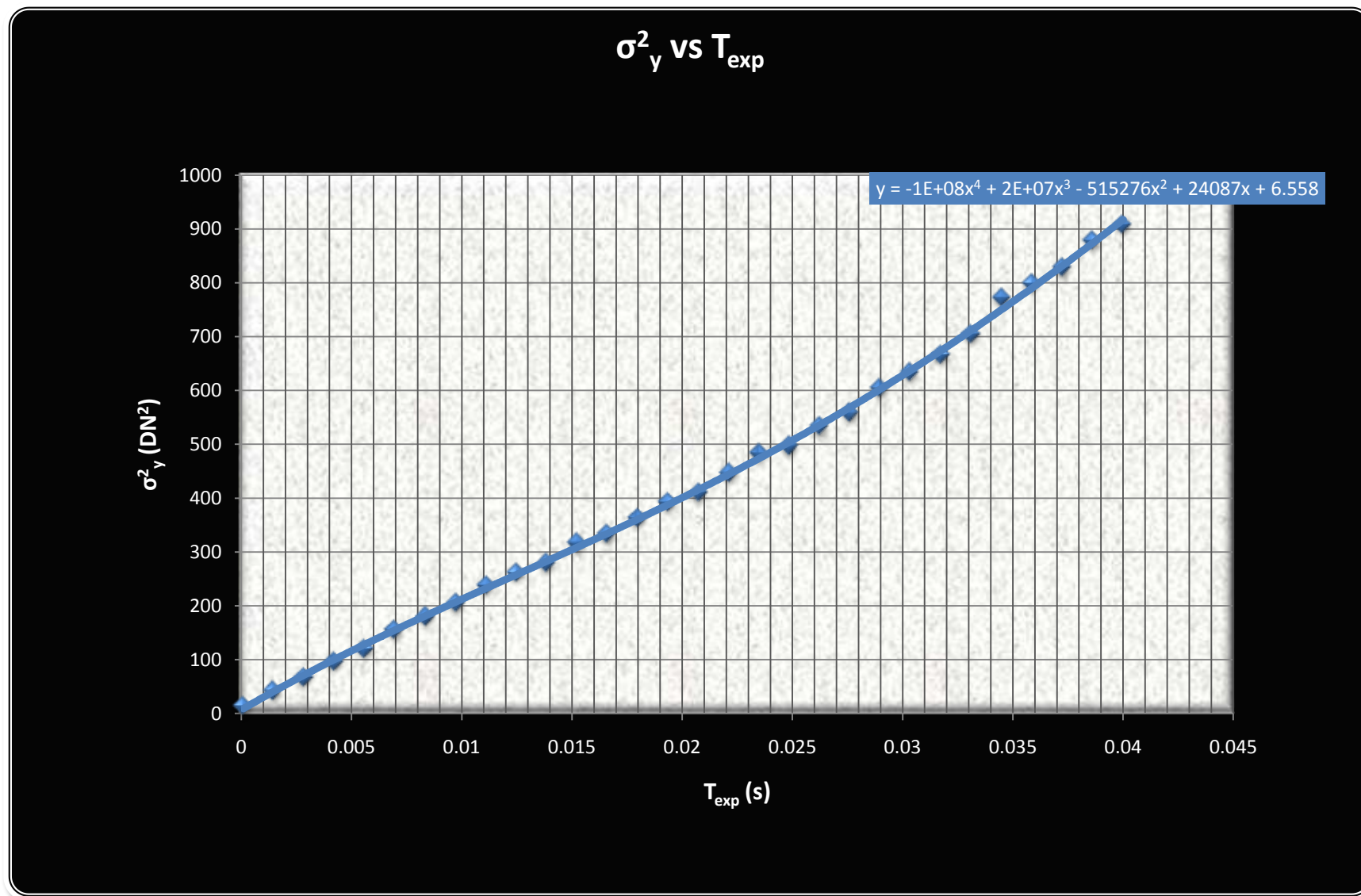


Figure 8: Variance of the gray values' temporal distribution in $[\text{DN}^2]$ versus exposure time in $[\text{s}]$.

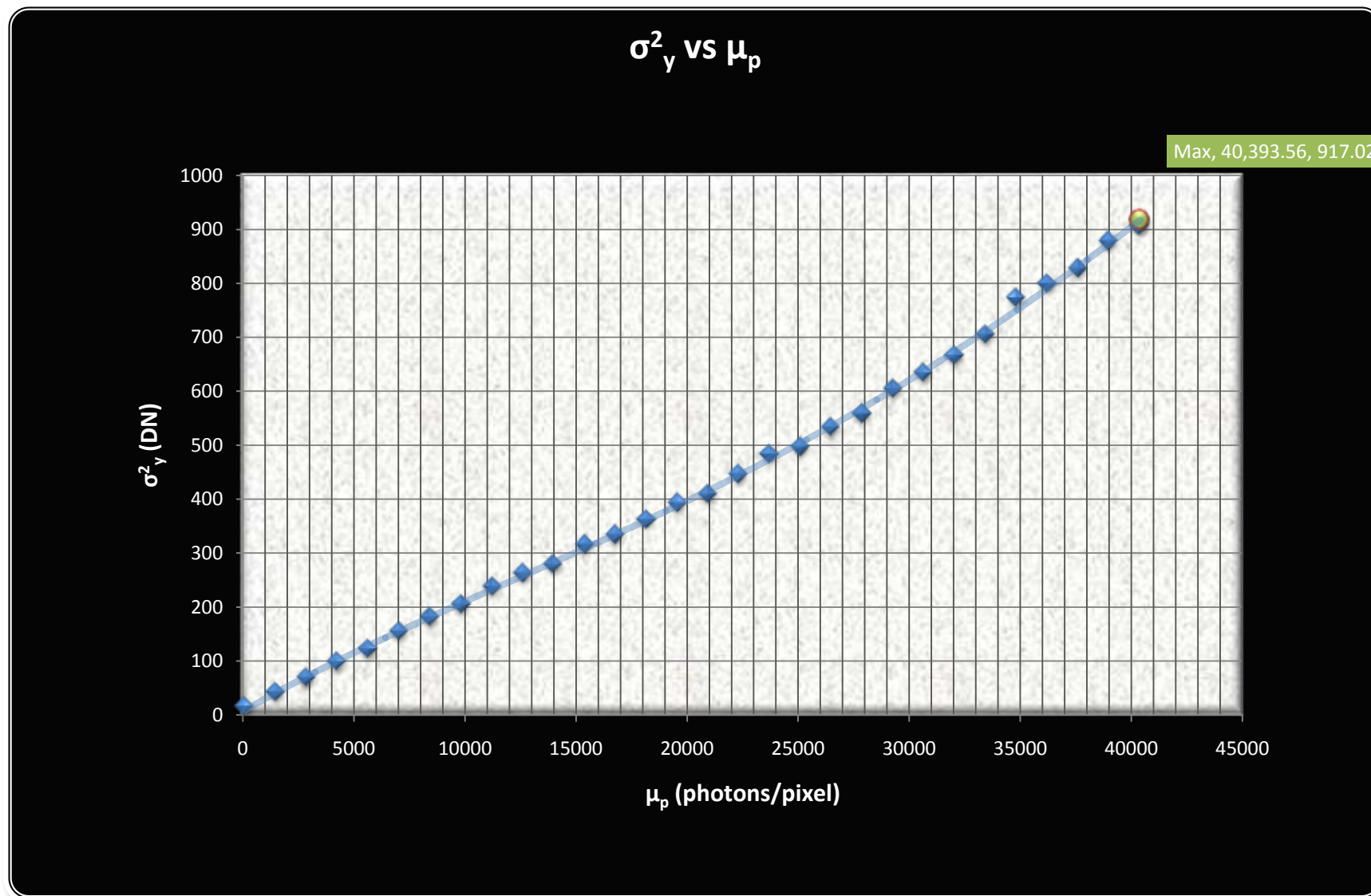


Figure 9: Variance of the temporal distribution of gray values in $[\text{DN}^2]$ versus the number of photons collected in a pixel during exposure time in $[\text{p.}]$.