

1/17

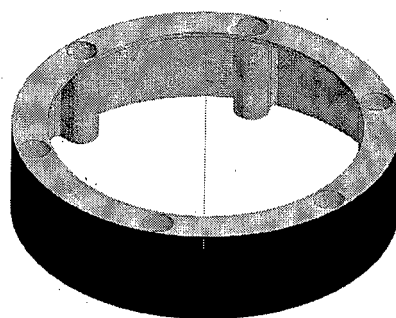


Figure 1A

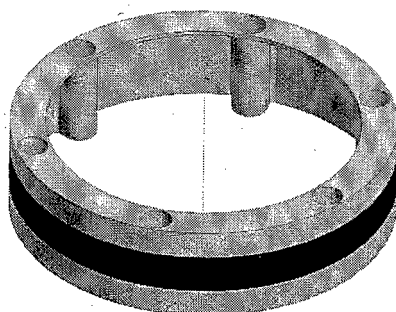


Figure 1B

2/17

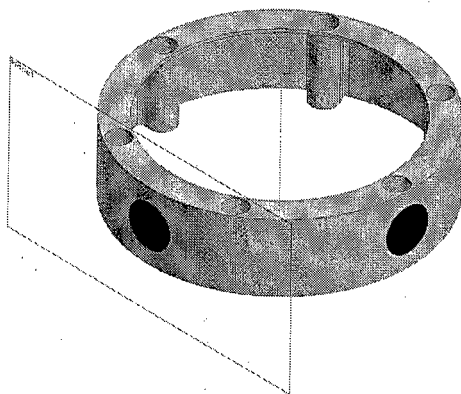


Figure 1C

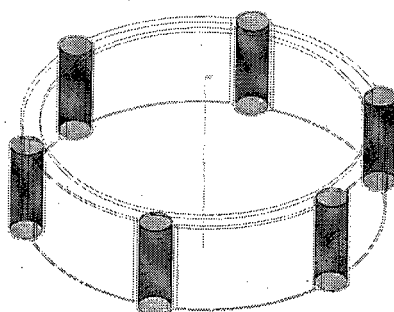


Figure 1D

3/17

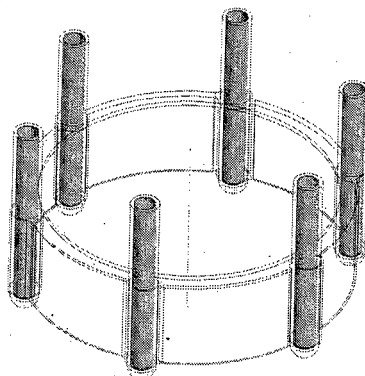


Figure 1E

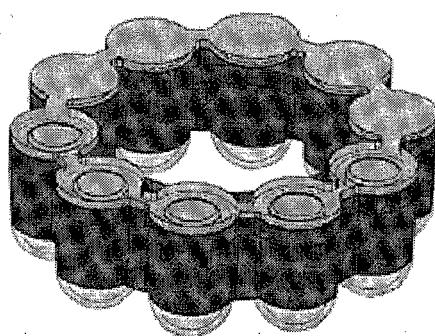


Figure 1F

4/17

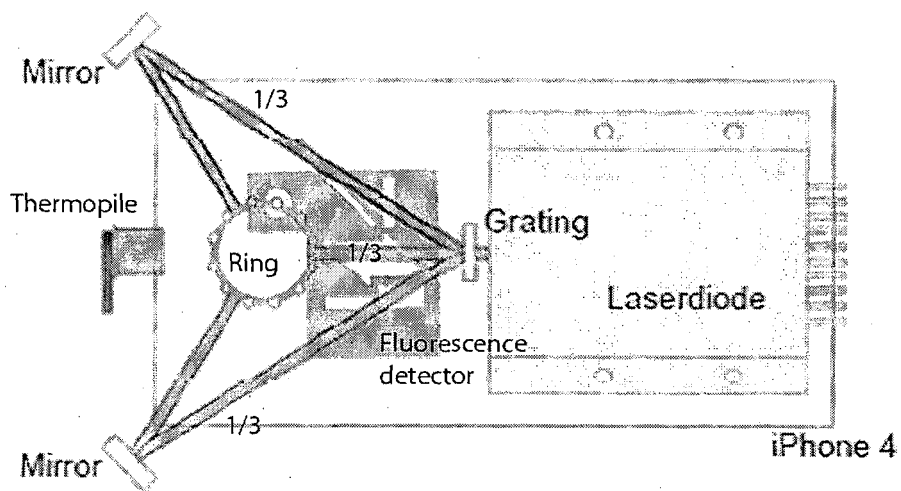


Figure 2A

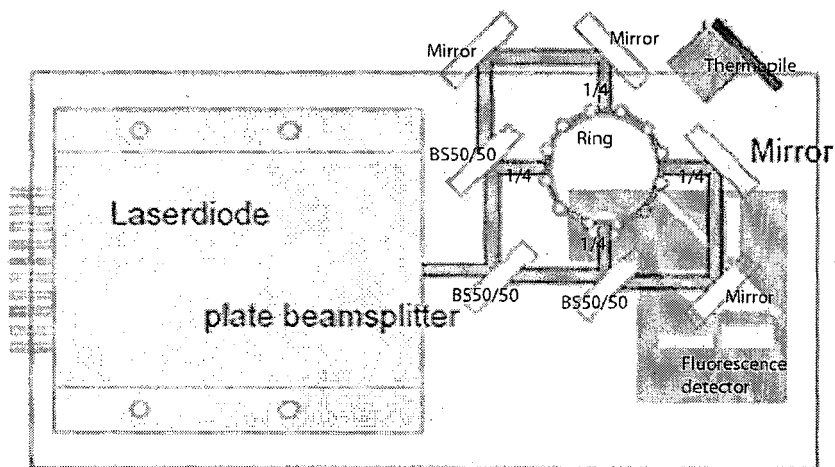


Figure 2B

5/17

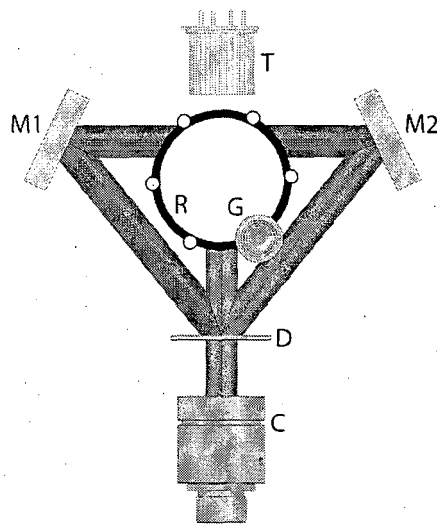


Figure 3A

Setup ^a						
RPS ^b (Hz)	ΔT (°C)	ΔT (°C)	ΔT (°C)	ΔT (°C)	ΔT (°C)	ΔT (°C)
0.14	0.27	0.31	0.29	0.83	0.88	0.93
0.3	0.23	0.31	0.37	1.99	0.85	1.01
0.4	0.19	0.27	0.33	1.54	0.92	1.76
0.6	0.11	0.20	0.23	1.24	1.27	1.39
1.11	0.05	0.11	0.07	0.24	0.40	0.41
^a All beamlets are equivalent in output power						
^b Rounds per second						

Figure 3B

6/17

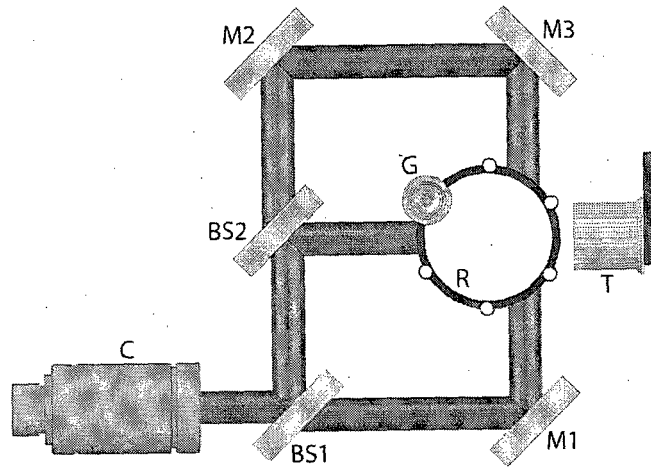


Figure 3C

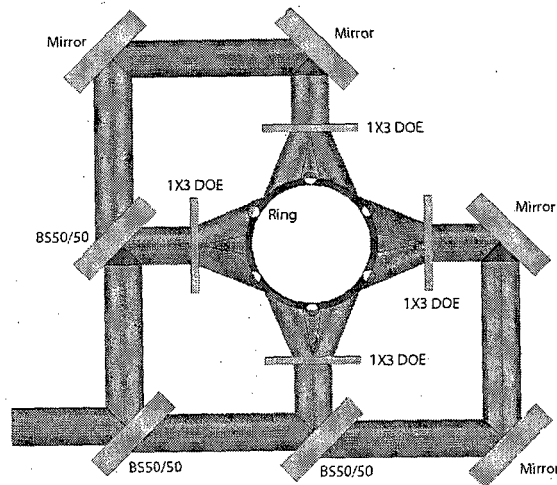


Figure 3D

7/17

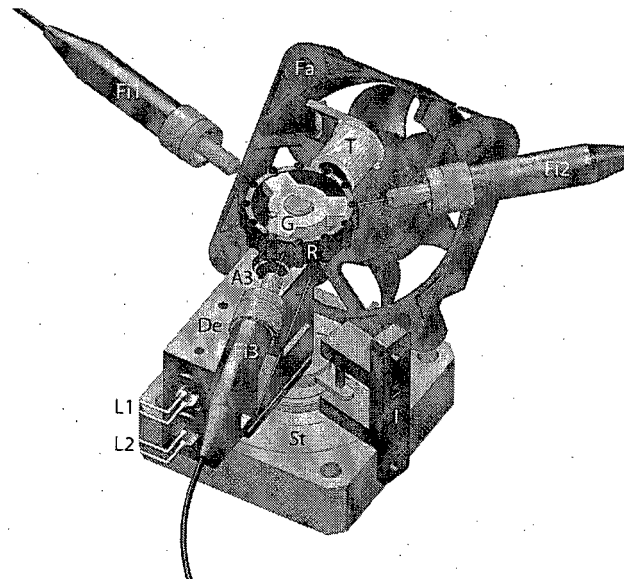


Figure 4A

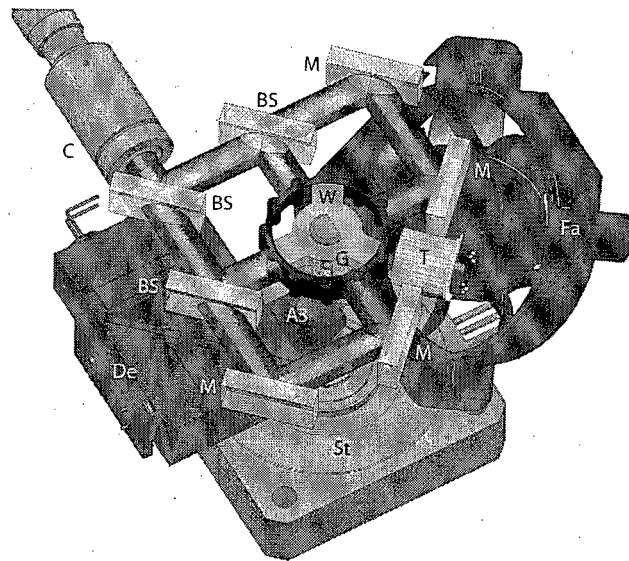


Figure 4B

8/17

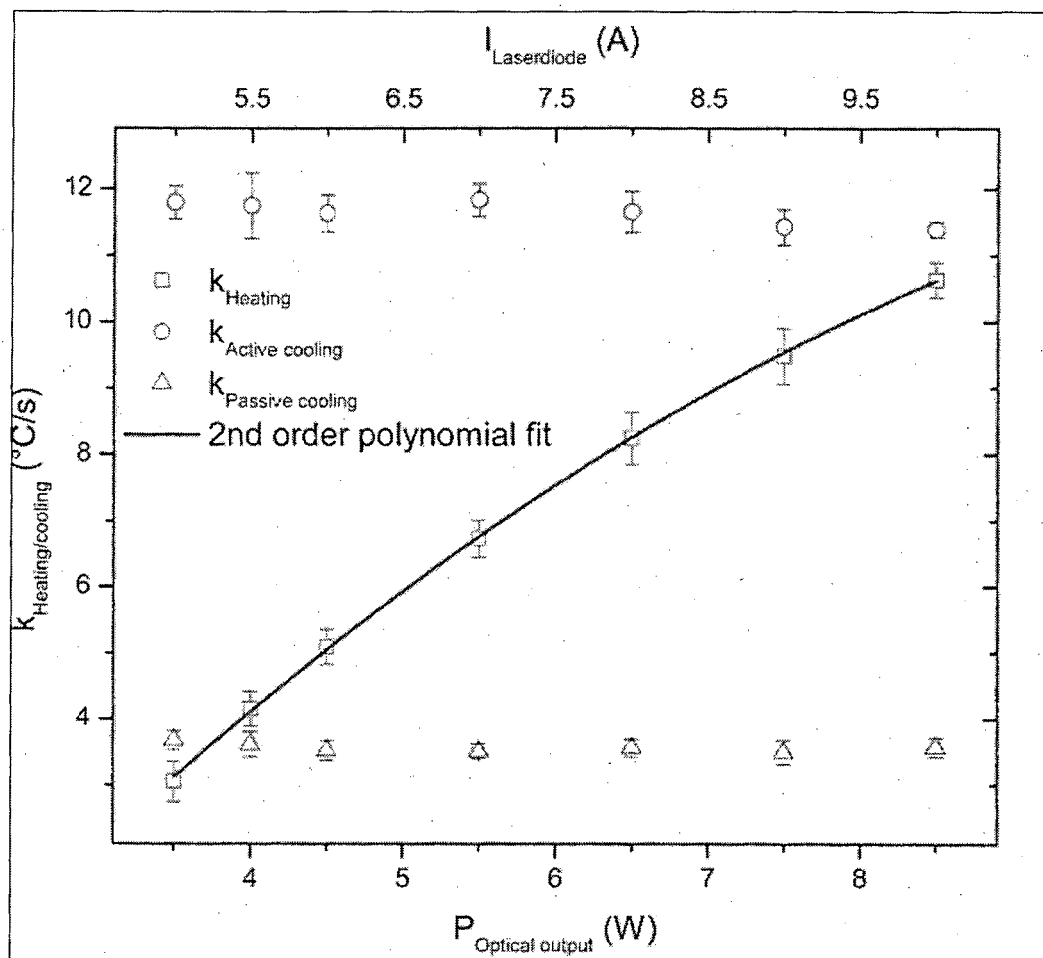


Figure 4C

9/17

Item/parameter		T (°C)	I (A)	U (V)	Pi (W) ^a	t (s)	Pt (Wh) ^b	Cycles	
Laserdiode	Initial denaturation	rt↗95	5.24	2.41	12.61	15.0	0.05	1	
		95⇒	2.52	2.41	6.07	600.0	1.01	1	
	Amplification	60↗95	5.34	2.41	12.88	7.0	1.25	50	
		95⇒	2.82	2.41	6.79	5.0	0.47	50	
		95↘60	0.08	2.41	0.19	5.4	0.01	50	
		60⇒	1.01	2.41	2.44	24.6	0.83	50	
	Cooling	60↘rt	0.08	2.41	0.19	30.0	0.00	1	
Thermoelectric cooler ^c	Initial denaturation	rt↗95	0.76	1.70	1.28	15.0	0.01	1	
		95⇒	0.47	1.50	0.70	600.0	0.12	1	
	Amplification	60↗95	0.59	1.70	1.01	7.0	0.10	50	
		95⇒	0.79	1.50	1.19	5.0	0.08	50	
		95↘60	0.49	1.00	0.49	5.4	0.04	50	
		95↘60 ^d	0.24	5.00	1.20	5.4	0.09	50	Fan
	Cooling	60⇒	0.28	0.60	0.17	24.6	0.06	50	
		60↘rt	0.24	5.00	1.20	30.0	0.01	1	Fan
Power consumption per run							4.13		
^a Instantaneous power							45.25	min	
^b Power over a one hour-period of time									
^c Thermoelectric cooler (TEC) as part of laserdiode high heatload (HHL) package									
^d Cooling Fan									

Figure 4D

10/17

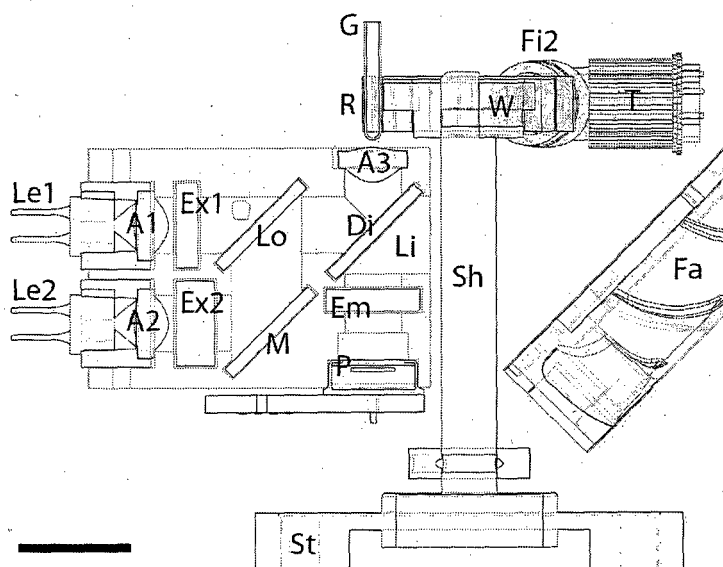


Figure 5A

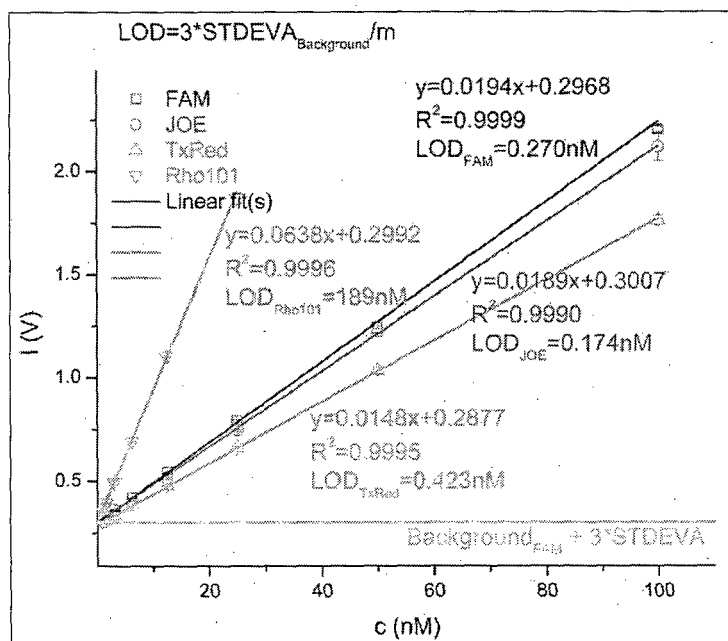


Figure 5B

11/17

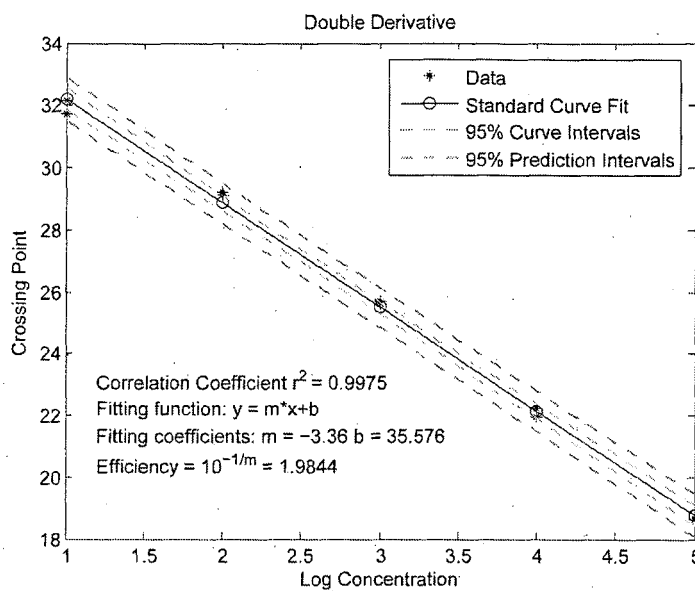


Figure 6A

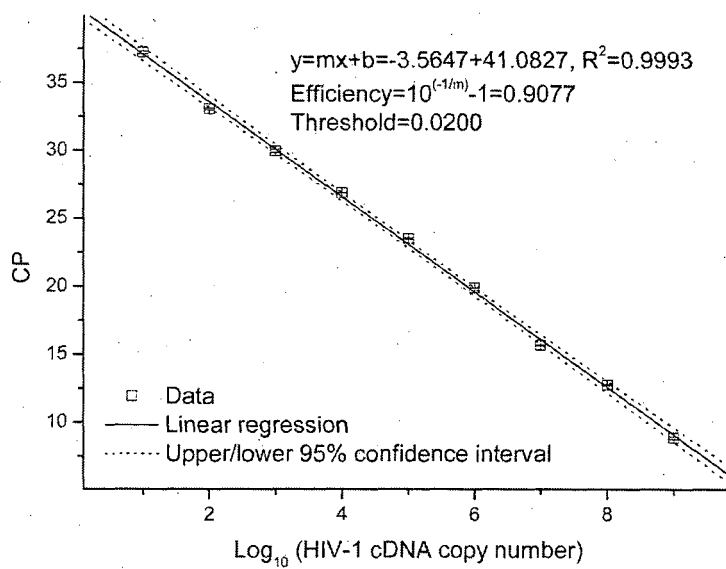


Figure 6B

12/17

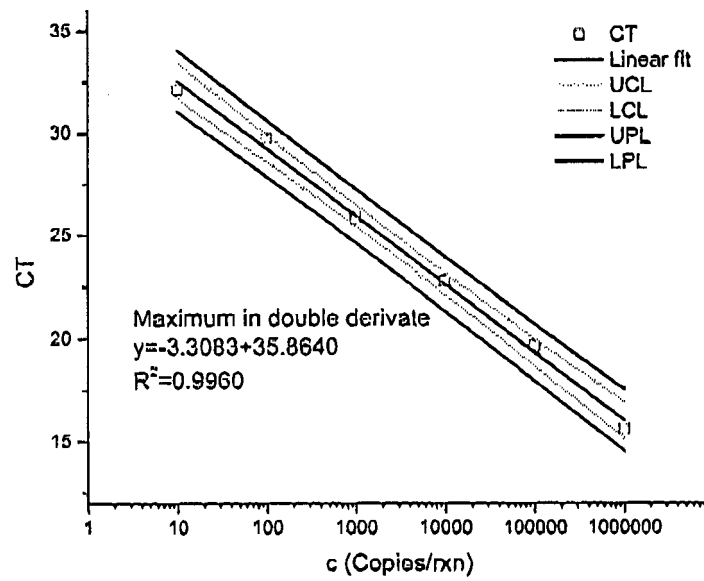


Figure 6C

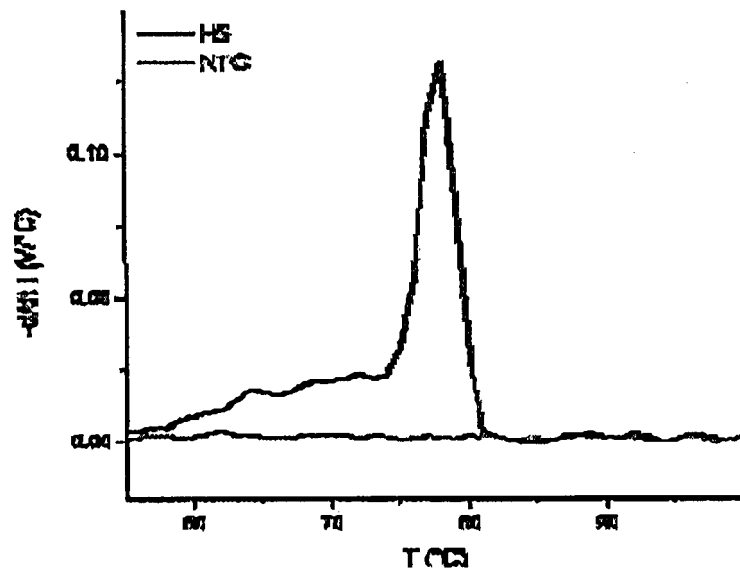


Figure 7A

13/17

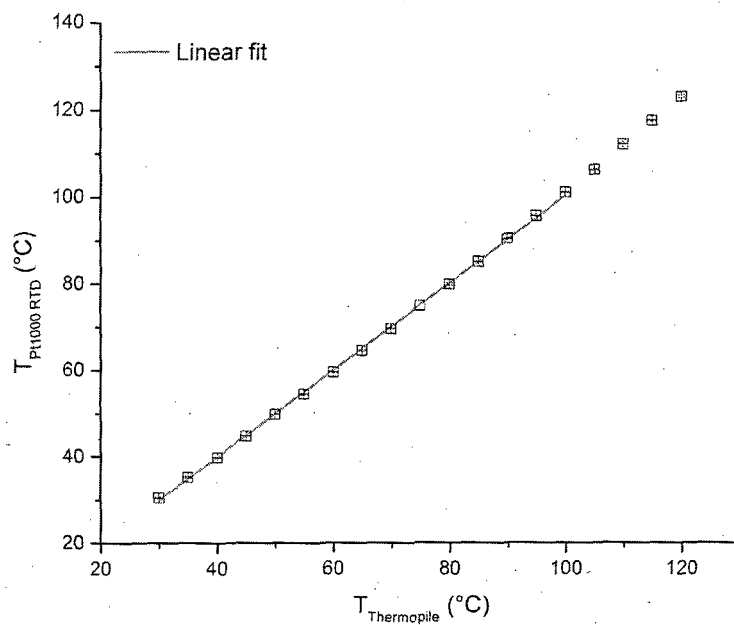


Figure 8A

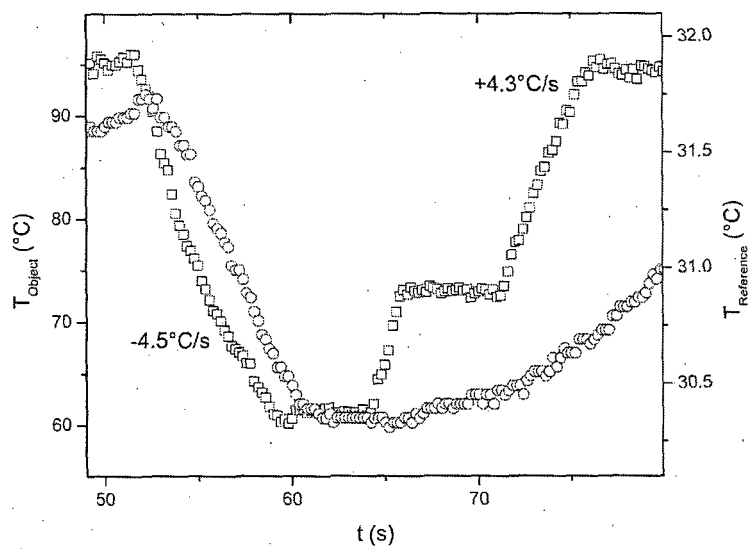


Figure 8B

14/17

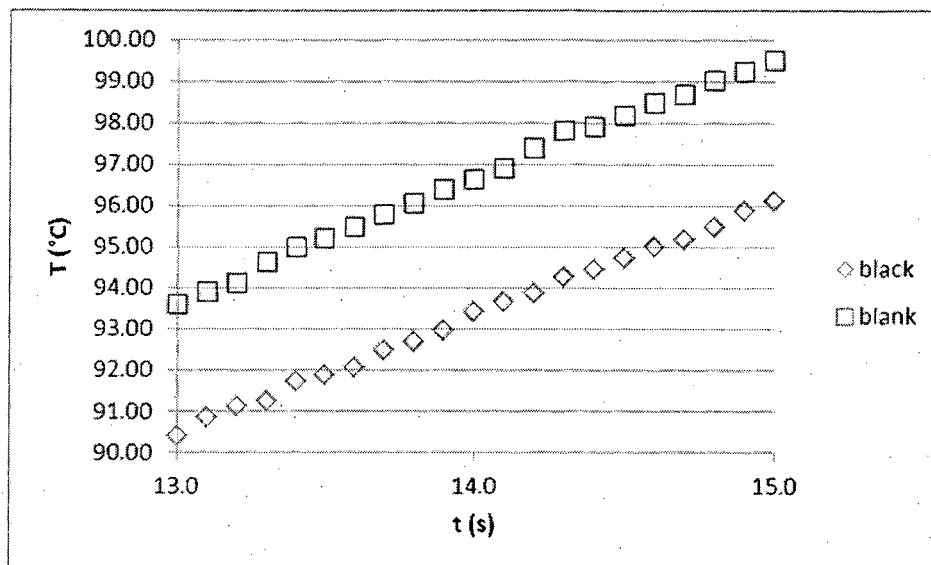


Figure 8C

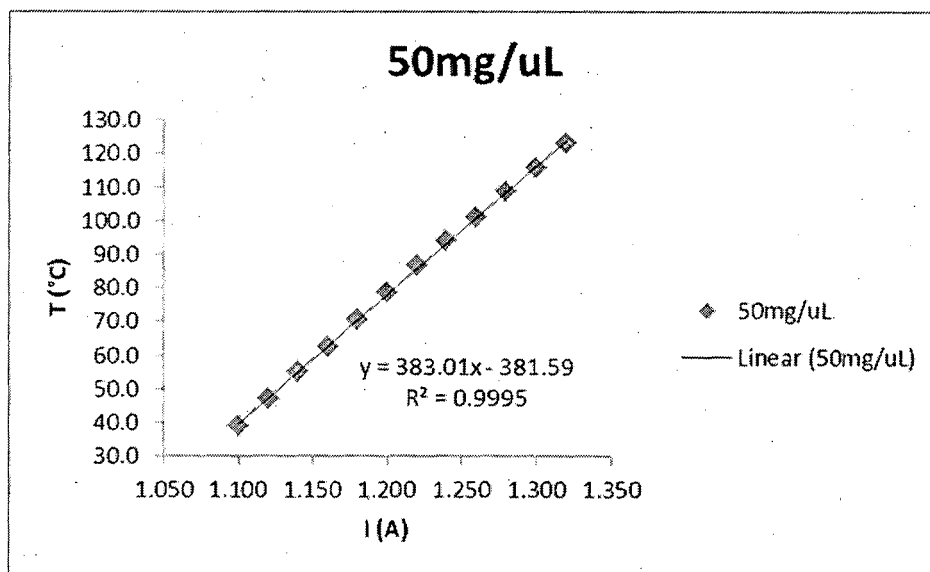


Figure 9

15/17

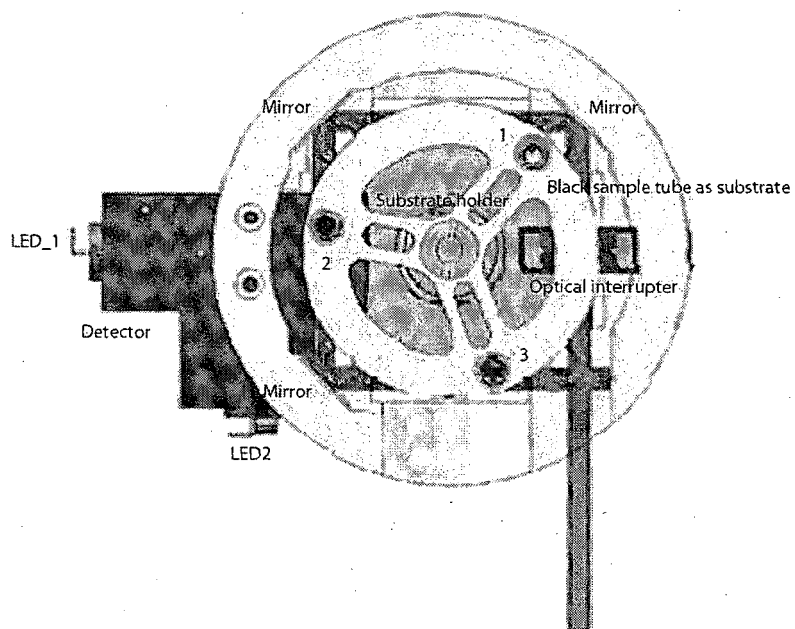


Figure 10A

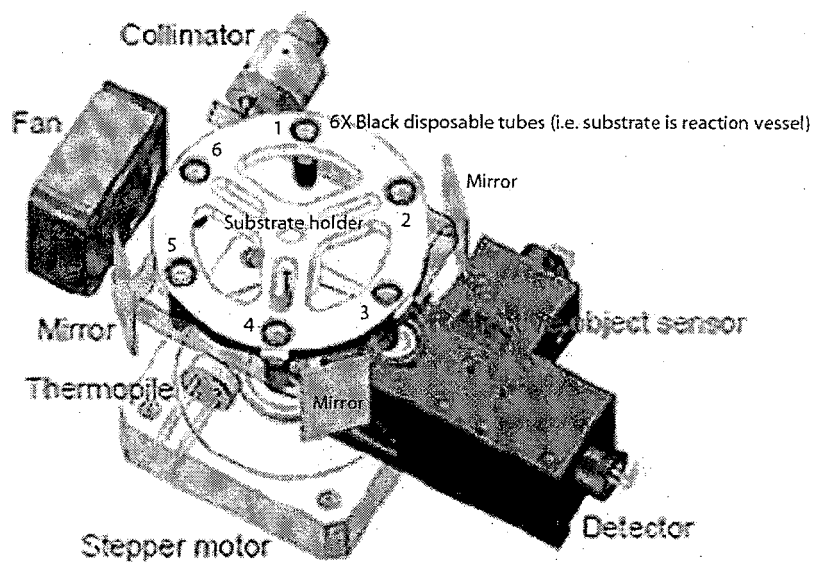


Figure 10B

16/17

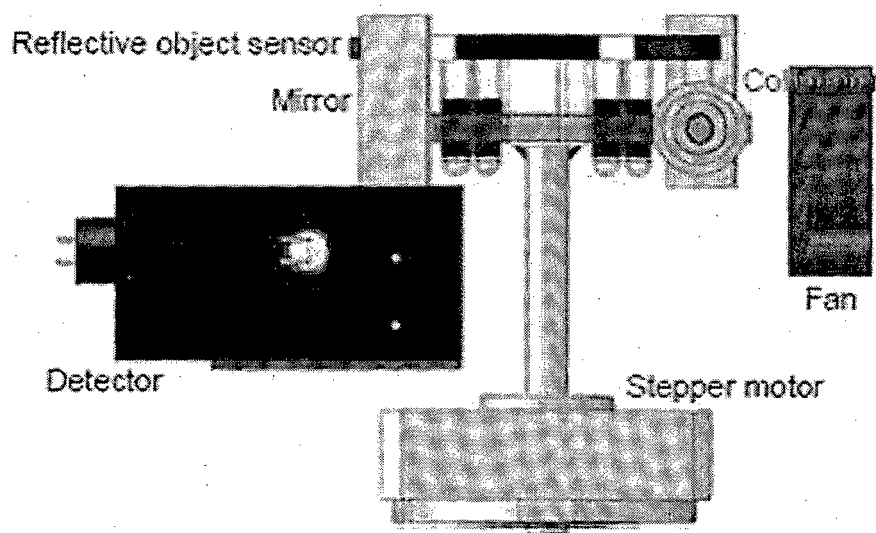


Figure 10C

17/17

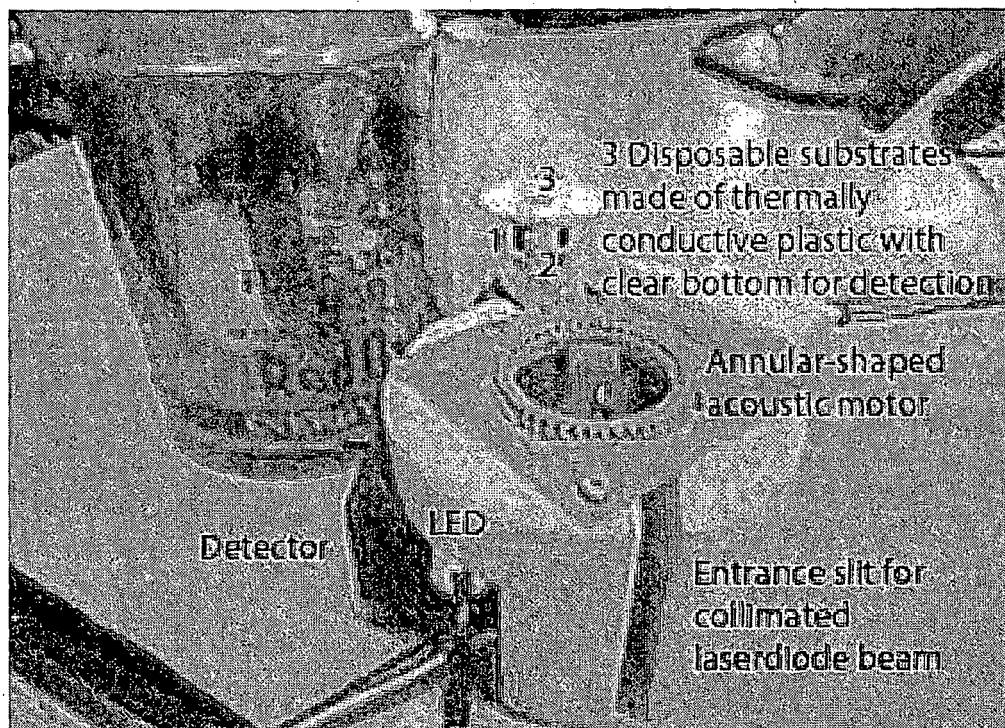


Figure 11