

## Department of Physics

Enquiry nos: Phy/SB/CCD/2013/01

Opening Date : 21/08/2013

Closing Date: 4/09/2013

**Subject:** Purchase of a high sensitivity Charge Coupled Device (CCD) camera

We are interested in the purchase of a high sensitivity CCD camera for the purpose of low light imaging and fast frame rate capture with low noise. Shown below are the desired specs of the EMCCD

SN	Parameter of comparison	Requirements	Remarks
2.	Number of Pixels	512 x 512	Minimum
3.	Cooling of CCD chip	-50°C to -100°C	Cooling close to -100°C is desirable
4.	Individual Pixel size	10 - 16 $\mu\text{m}$ x 10 - 16 $\mu\text{m}$	
5.	Active area pixel well depth	> 150,000 electrons	
6.	Max. Pixel read out rate	> 10 MHz	
7.	Frame rate	> 30 fps	
8.	Read out noise	< 1electrons @ 10 MHz	
9.	Quantum efficiency at 550 nm	~ 85 - 90%	
10.	Dark count (electrons/pixel/sec)	0.001	
11.	Digitization	16 bits @ 10 MHz and lower speeds	If higher than 10 MHz is available then digitization of 16 bits should be available at these speeds too.
12.	Linearity of gain	Linear gain scale	This is a very important requirement. Should be ensured in the technical documents
13.	EM gain calibrated	EM gain should be calibrated	This is specifically required for EMCCD
14.	Electronic shuttering	Essential	
15.	Labview Drivers for complete camera control	Essential	Labview drivers for complete camera control must be provided.
16.	SDK	Essential	
17.	Fan Vibrations	Should be very low on CCD chip	

We are a non-commercial organization. The CCD camera will be used for research and teaching purposes only. We request the best price quotation following the specification outlined above. Please offer the best possible educational discounts to make your quotations competitive. In a sealed envelope please send the following:

1. Quotation with the best price offer inclusive all the terms and conditions.
2. All technical specs and documents adhering to the specifications and standards outlined above for the camera.
3. A list of place in India and abroad where the quoted camera has been supplied.

Please arrange to deliver the above within the specified time to the following address:

**Prof. Satyajit Banerjee**

**Department of Physics**

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**Uttar Pradesh.**

**India**

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