An Acquisition system for CMOS imagers with a genuine 10 Gbit/s bandwidth

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***Abstract*—This paper presents a high data throughput acquisition system for pixel detector readout such as CMOS imagers ...**

***Index Terms*—CMOS image sensors, adaptive optics, data acquisition, image resolution, nanophotonics.**

I. Introduction

THE CMOS Image Sensors (CIS) are able to provide highdefinition images at an ultra-fast frame rate, thanks to the reduction of the grid size ...

II. Synoptic of the data acquisition system

The imaging system is composed of 3 main blocks[1] and within the S/N ratios at different frame rate as shown in the Table I ...

TABLE I
S/N ratios.

Frame rate	S/N ratio
125	2.0
250	1.5
500	1.1

III. DAQ boards

The DAQ board has been designed ...

IV. Software

A. The software platform

The computer is in charge of data reception ...

B. Implementation, optimization and performances

When working at 500 frames per second, we obtained image as shown in the Figure 1 ...

V. Conclusion

We presented in this paper an acquisition system for CMOS imager with a true 10 Gbit/s bandwidth ...

Appendix A
Tracking algorithm

Tracking algorith was implemented for more than 2000 targets ...

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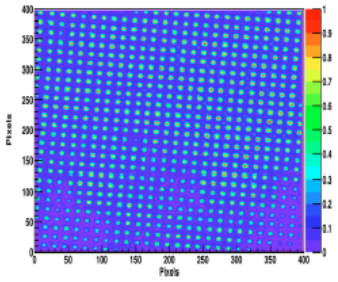

Fig. 1. Image capture of a microlens 400x400 pixels.

Appendix B
Target list visualization

Trajectory of bacteria was drawn ...

Acknowledgment

The LUSIPHER Project is supported by grants from Institut National de Physique Nucléaire et de Physique

References

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