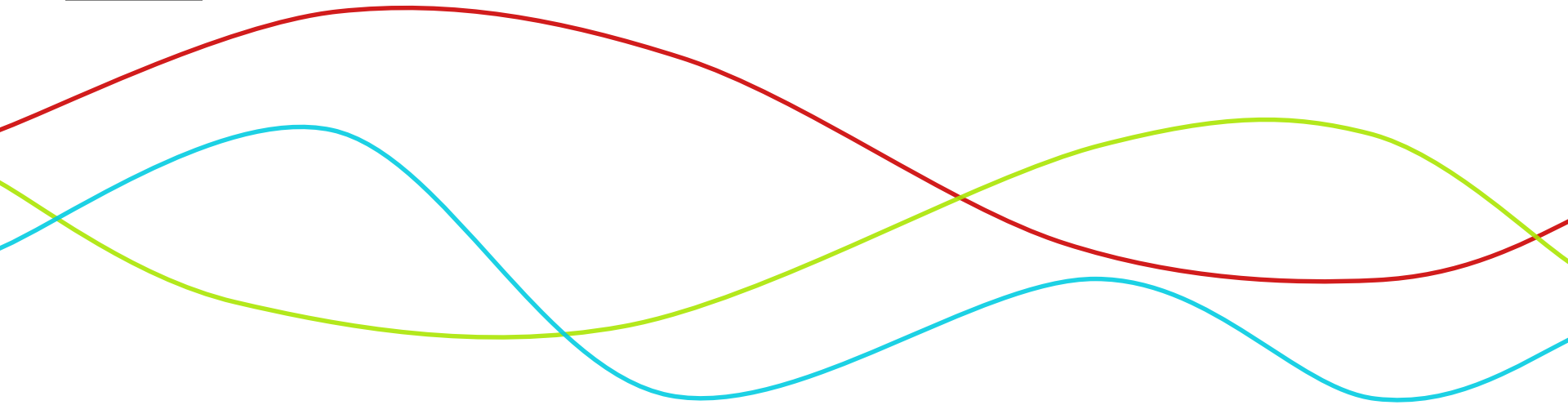


PYX-XL

Large scale ultra high resolution platform
for scientific community

B. Dupont



OUTLINE



- About Pyxalis
- Platforms: cost effective semi-custom image sensors
- PYX-XL platform



About Pyxalis

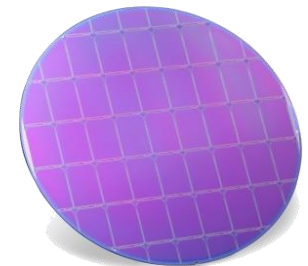


PYXALIS is a high-end CMOS Image Sensor supplier & Design house

- Founded in: 2010
- Team: 30 people
- Experience: >200 man-year experience in CMOS image sensors
- Innovation 8 patents filed (5 in prep), 6 joint R&D programs



- Located in **Grenoble**, France
700sqm offices, state of the art design center, full EO characterization

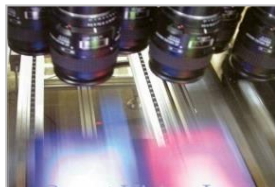
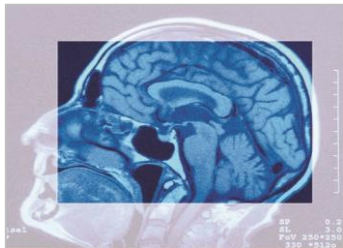


About Pyxalis



Pyxalis is a custom image sensor supplier in the field of:

- Medical
- Security
- Automotive
- Consumer
- Machine Vision
- Science
- Air and space applications



TWD 2016 conference

Image sensor Platforms



Scientific detectors have very strong performance requirements

But:

Budget to get access to SOTA technologies is difficult



Image sensor Platforms



Scientific detectors have very strong performance requirements

But:

Budget to get access to SOTA technologies is difficult

→ A platform helps to compensate technology costs by lowering development costs for scientific community



Image sensor Platforms

A CMOS Sensor platform is:

- a collaborative approach
- highly programmable to adapt to various applications
- easy to modify
- based on high performance technology blocs

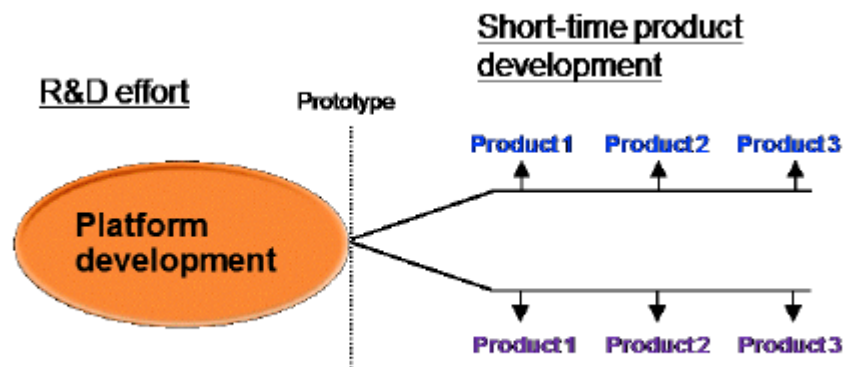


Image sensor Platforms

A living example: **HDPYX** HDR scientific detector platform:

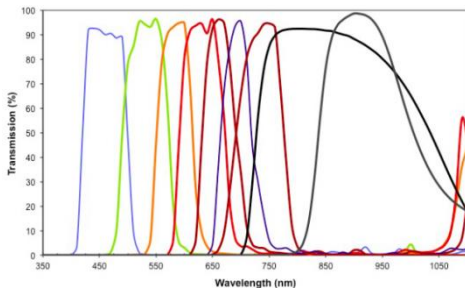
Space born app.

First flight 2018



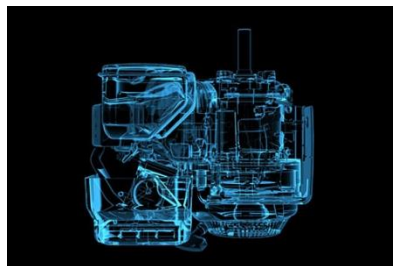
Multispectral application
With custom filters

In use



Direct Xray
With ultra thick EPI

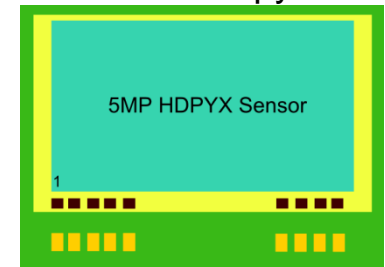
Q2 2017



Custom dicing for large scanning area



Larger 5MP version
for microscopy for ex



BSI for UV enhancement

PYX-XL platform



PYX-XL platform

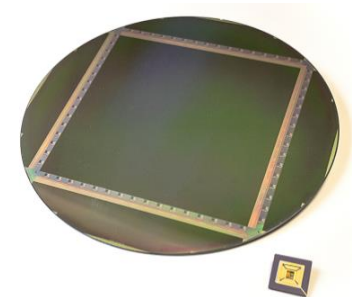


A platform leading to:
The highest resolution imagers

Target specification	Value
Pixel pitch	4-24 um
Sensor diagonal	29 cm
Sensor resolution	>1.5 GPixels
Frame rate	>100 FPS
Full-well	>50ke- > 200ke- in charge binning

Challenge:

- Yield
- Data rate



PYX-XL platform



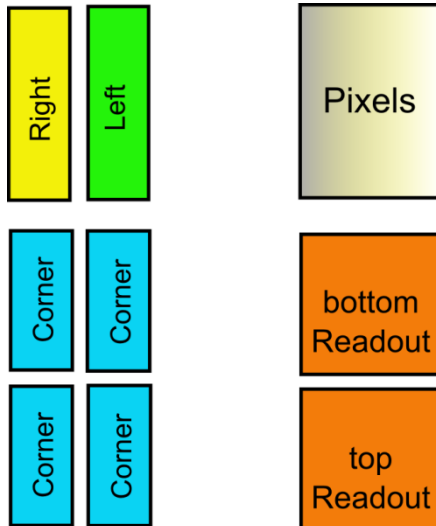
- Such large detectors have encountered interests in the scientific community:
 - For electron beam microscopy applications
 - For some Xray applications (Synchrotron for instances)
 - For earth observation
 - And others.



PYX-XL platform



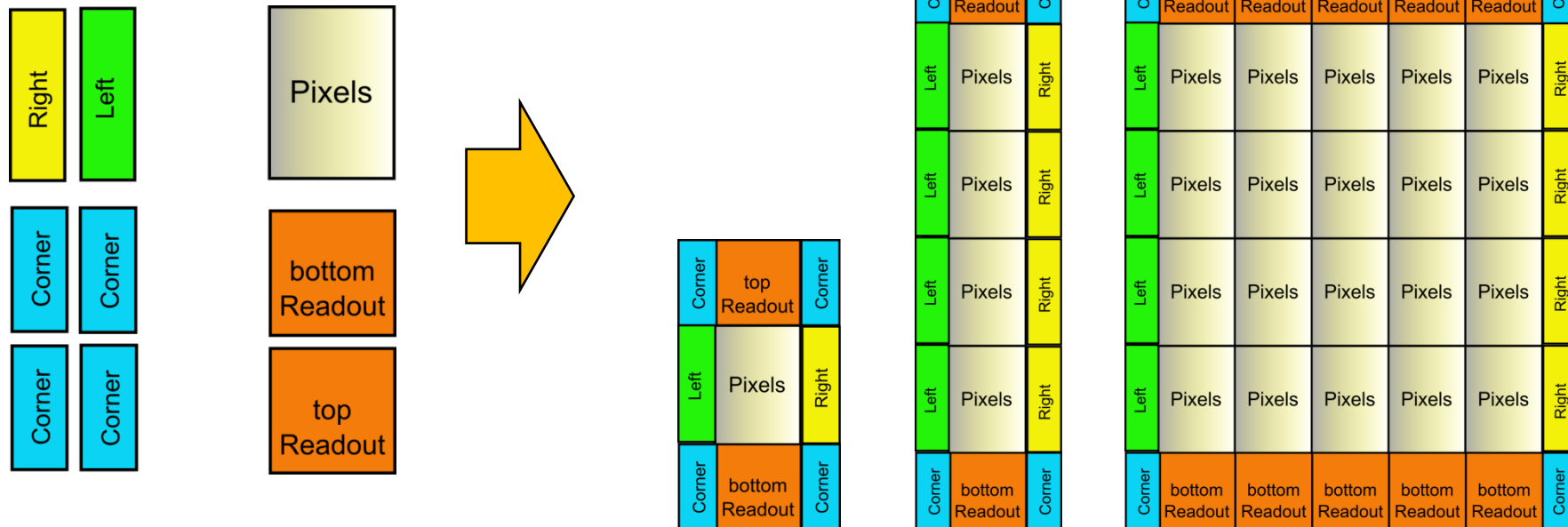
- The project aims at creating One mask set using stitching



PYX-XL platform

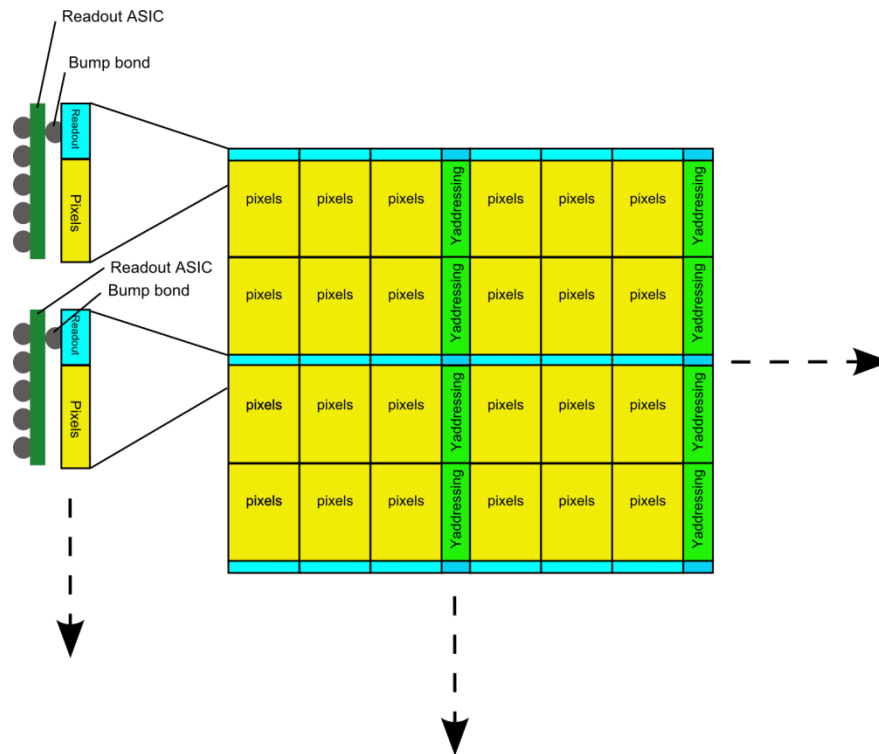


- Using this mask set to serve the scientific community in various types of detectors:



PYX-XL platform

- For higher frame rate we propose to investigate TSV technology with stitching to define higher speed sub-sensor on the same focal plane:



PYX-XL platform



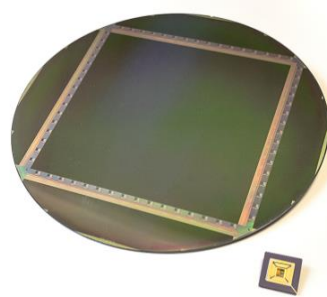
- A collaborative approach
- Through this project we will make to the scientific community a new line of detectors that can be customized at minor costs compared to traditional full-custom approach.
- The first goal of this project is to gather converging specifications from users of such detectors
- Perform feasibility and viability study of such large detector



Thank You !



PYX-XL



**A large scale ultra high resolution platform
for scientific community**