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CMOS Sensors for Science Research & Development

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CMOS 4 Science

CMOS Image Sensors, and CMOS ASICs in general, are complex designs made by a number of different sub-blocks.

Pixels, amplifiers, ADCs, DACs, I/O stages, digital controls, etc. have to be designed and represent the building blocks of any CMOS sensor.

The design of the sub-blocks is normally done in stages, with few of them designed, manufactured and tested using smaller ASICs (MPW). This reduces risks and costs.

Examples of this are projects like DECAL for Particle Physics or the sensors for cryo-EM and X-rays designed and delivered by CSDG. have been designed in the same way.

This design cycle has to be repeated for each technology node, 180nm, 65nm, 28nm.

Continuous development of building block is the foundation for every future activity.

CMOS 4 Science

The development of building blocks has been carried out thanks to the initiative of single Groups or Institutions.

Gaps in funding or availability of staff represent very often an obstacle to such developments.

We need a different model to run the R&D for new sensors:

- Long term plan (>3 year)
- Reliable funding
- Clear inputs from the scientific community
- Emphasis on collaborative developments
- Look into all possible applications to maximise the impact and the economic return of the investment



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Thank you



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