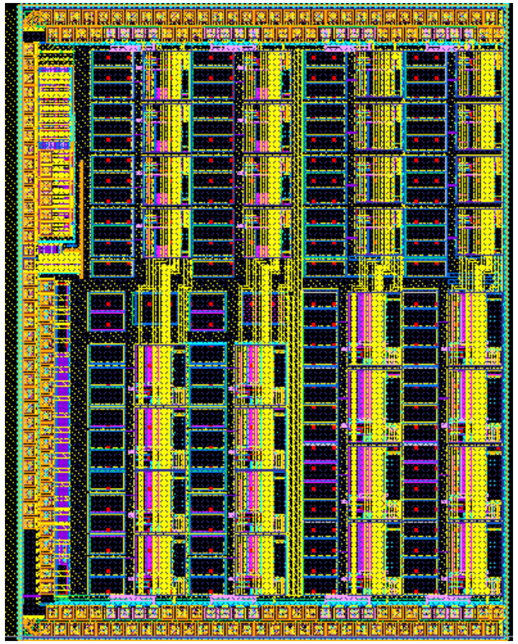
FASTPIX

Short description of the aim(s) of the Project: We aim to provide a CMOS sensor structure eliminating the tradeoff between minimum pixel size and signal timing variation and lay the basis for a “dream” sensor, revolutionizing not only high energy physics experiments, but also other scientific measurement tools as imaging Time-of-Flight Mass Spectroscopy and Fluorescence Life-Time Imaging Microscopy, and sensors used in daily life like LIDAR in cars. We have now designed a first prototype.



FASTPIX prototype chip being submitted now. It contains sensor prototypes with significantly accelerated charge collection

Current status of progress:

% of deliverables completed so far: 60 %

% of budget (100 kEUR) spent so far: 55 % (submission)

Any remaining uncertainties w.r.t planned deliverables

- [ ] No
- [x] Yes, chip submission being finalized – need measurement results

Using students (PhD/MSc/BSc) in the project?

- [x] No (but fellows yes)
- [ ] Yes

Any interactions with other funded ATTRACT projects so far?

- [x] No
- [ ] Yes; only very informal for the moment

If your project were to be selected for ATTRACT Phase 2:

How would your technology scale up to become an industrial product/system?

After this first demonstration significant effort is required to implement the principles in very advanced submicron technologies and take advantage of their features to make a significant performance step.

With who you would need to partner for this to happen? (No names, just profiles of type of organizations)

Silicon foundries, specialized in fast timing imagers, some of which we already collaborate with, and companies specialized in scientific instruments or in remote sensing for instance in cars. Results from the present prototype will raise their interest, and could enhance their products. Such partnership is essential to reduce time-to-market.

Have you already discussed this with KT Group?

Not yet in detail, but we know KT has links with some of the silicon foundries specialized in image sensors.

What applications will you demonstrate with value for science, industry and society? (Examples)

We will concentrate first on high energy physics, where MIPS give a large signal and then others like imaging Time-of-Flight Mass Spectroscopy and Fluorescence Life-Time Imaging Microscopyon depending on the partnerships above.

Any comments, remarks or observations you would like to make to CERN?

This project has been challenging but also very helpful for CMOS sensor developments at CERN. Resources from a continuation would give us access to very advanced deep submicron technologies.