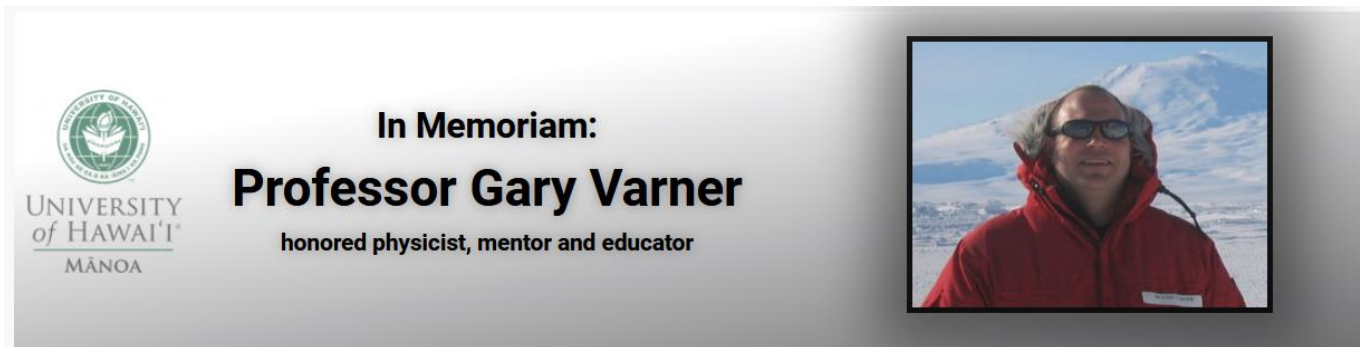


Andrej Seljak
Postdoc position in ASIC design
January 2014 till August 2018 (4.5 years)



IDL – (International) Instrument Development Lab
(US, China, Canada, Switzerland, Finland, Italy, Germany, Slovenia)

Varying every year, non discriminatory!
Gary was an avid supporter of cultural exchange!



Gary Varner, professor of physics and astronomy at the University of Hawai'i at Mānoa, died on July 14, 2023.

Celebration of life (agenda)

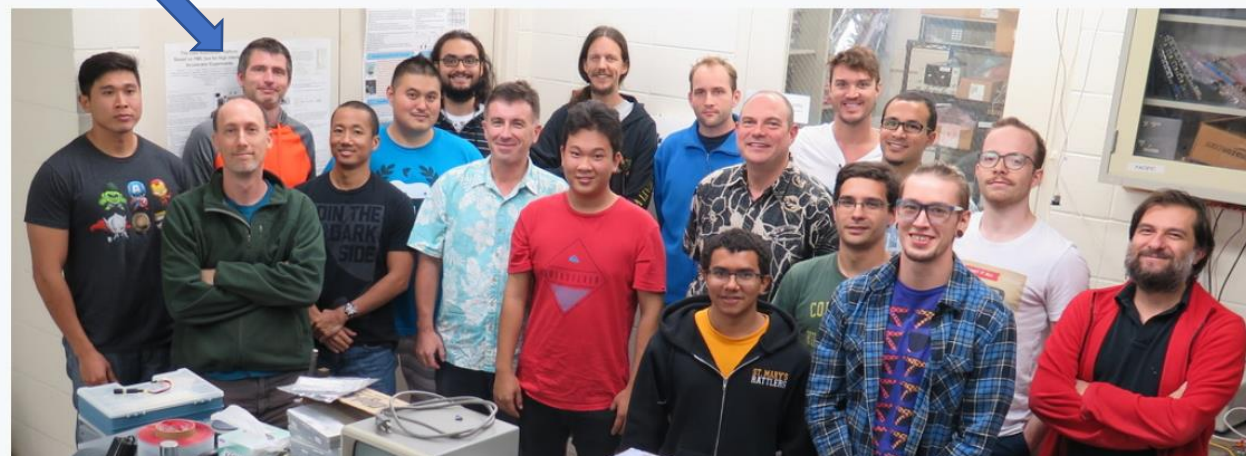
Watanabe Hall
Saturday, August 19, 2023
10:00 am - 3:00 pm

[Join Zoom Room](#)

Professor Gary Varner's Storybook

This Google form will collect stories and memories of Gary Varner. Feel free to submit a memory or story about Gary and also add a personal condolence message if you would like that will made accessible to only Jaimy and Gary's family.

[Submit a memory or story about Gary](#)



Prof. Gary Varner and the Instrument Development Lab (IDL) team.

Andrej Seljak

- Ljubljana, Slovenia, 2009 – 2013 PhD in Physics
Topic: Readout system for the **ARICH detector at Belle II**,
a complementary system to the **TOP detector**

-> Looking back my first interaction with Gary (~ only 12 years ago):

Re: your mail 



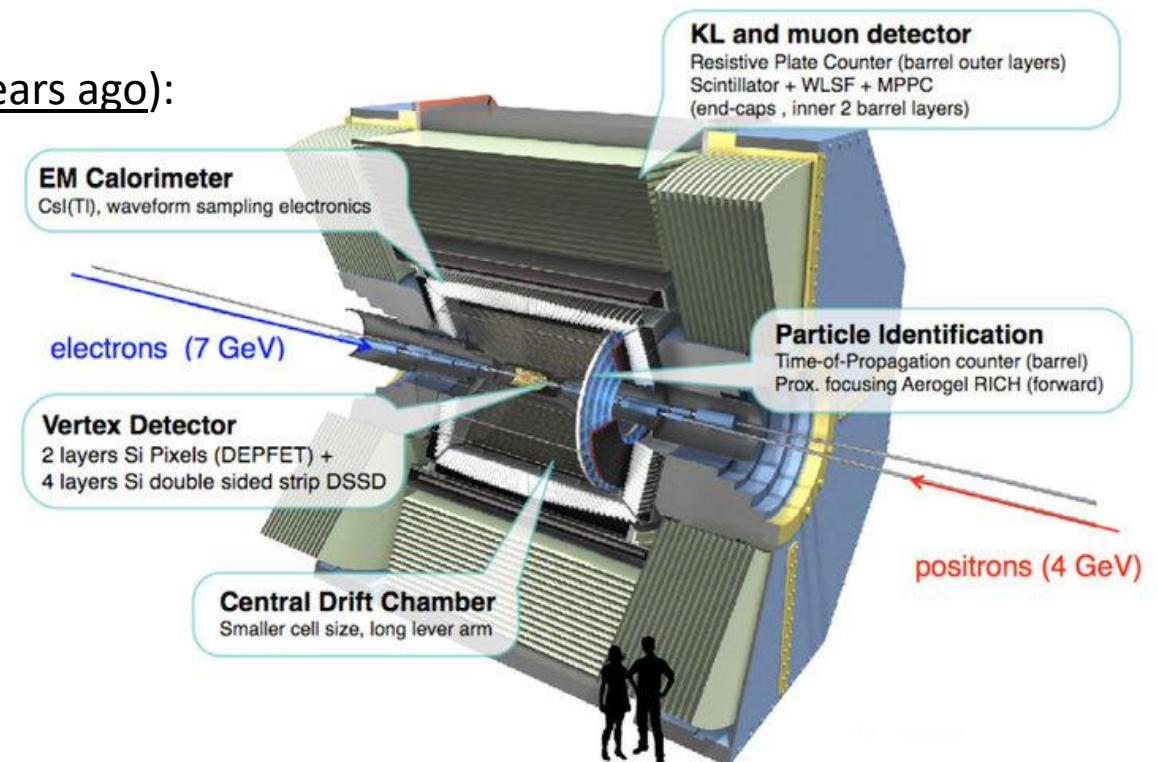
From Gary S. Varner on 2011-01-26 07:28

 Details

As usual, need also to specify the :

- 1) power
- 2) serial/parallel out?
- 3) single channel?
- 4) dynamic range?
- 5) use front-end amplifier (to convert single/diff input for certain ADCs)
- 6) cost? and so forth...

Cheers,
Gary



This job is closed!

2 years later

<https://inspirehep.net/jobs/1243777>

Application Specific Integrated Circuit

Hawaii U. • North America

hep-ex physics.ins-det PostDoc • Experiments: Next generation, high-rate photodetector readout

🕒 **Deadline on Dec 31, 2013**

Job description:

Application Specific Integrated Circuit (ASIC) Postdoctoral Research Fellowship

Minimum Qualifications:

-> Demonstrated proficiency with ASIC and PCB CAD tools mandatory.

On Fri, 13 Sep 2013, Andrej Seljak wrote:

Dear Gary,

I write in replay to doc position dealing <http://inspirehep.net>

I am in the process to the work/studies in the design, VHDL programming electronics. That also Aerogel Ring Imaging. My previous studies in and radiation finished electronics/robotics Ljubljana. I also have

I should also be honest and clearly mention that I no experience with Cadence tools. So far I worked with Altium designer, ISE and Altera Quartus. I am quite fond of all laboratory equipment including RF vector analyzers. However I like the challenge and something new is usually something good. I also like to explore new things and the idea to try to design an Asics is certainly vibrant and present already some time.

Its kind of long time I have not updated my CV, but my LinkedIn page perhaps best reflects my career so far including relevant publications. <http://si.linkedin.com/pub/andrej-seljak/32/32/199>

I will update my CV in short time however.

I should also be honest and clearly mention that I no experience with Cadence tools. So far I worked with Altium designer, ISE and Altera Quartus. I am quite fond of all laboratory equipment including RF vector analyzers. However I like the challenge and something new is usually something good. I also like to explore new things and the idea to try to design an Asics is certainly vibrant and present already some time.

I would like to have more detailed informations about the position if you consider I might be a suitable candidate to apply.

If you need more information feel free to ask.

Kind regards from Ljubljana, Andrej Seljak

offer letter



From Gary S. Varner on 2013-10-07 20:37

✉ Details

📎 Andrej_Seljak_offerletter.pdf (~91 KB) ▾

Dear Andrej,

Please find attached an offer letter for our open ASIC postdoctoral fellow position.

We look forward to receiving your response.

Aloha,
Gary

few emails later

Re: Postdoc position

From Gary S. Varner on 2013-09-15 06:10
✉ Details

Hello Andrej,

Thank you for expressing interest in the position.

Certainly I am aware of your work on the ARICH.

To a certain degree ASIC designers are made and not born that way

The task initially is to carry on the work that we are doing for NASA in conjunction with the Space Science Laboratory in Berkeley. However I anticipate the position to evolve to work on ASIC development for next-generation UHE mu detector and Belle II / ILIC detector needs.

We have a serious candidate that we'll be interviewing this next week. If you want to be considered, please arrange support letters as soon as possible.

Thanks,
Gary

Certainly I am aware of your work on the ARICH.

To a certain degree ASIC designers are made and not born that way.

Who invented the telescope?

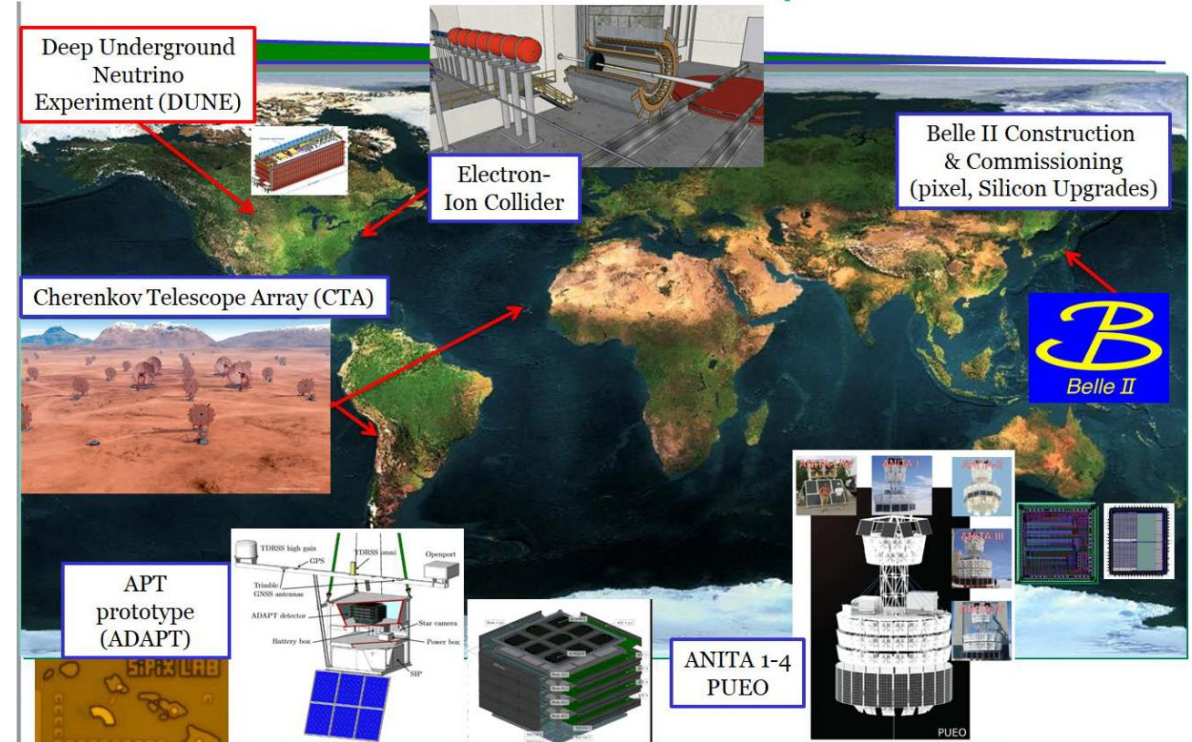
By Lauren Cox published October 26, 2021

Several men laid claim to inventing the telescope, but the credit usually goes to Hans Lippershey, a Dutch lensmaker, in 1608.



One of Galileo's first telescopes. He did not invent the telescope, but he did make several improvements and was the first to aim one at the stars. (Image credit: NASA)

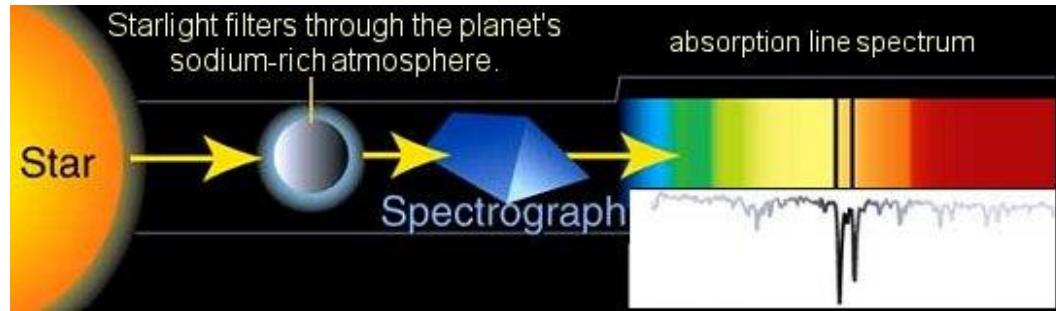
A world-wide impact



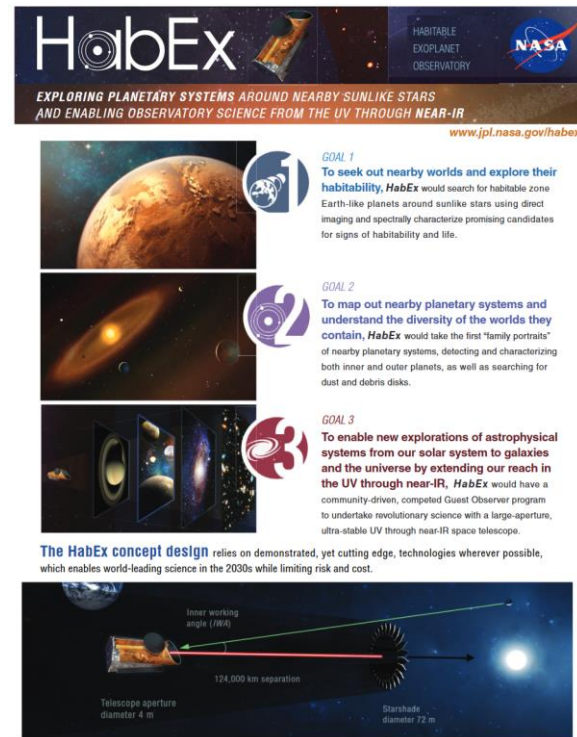
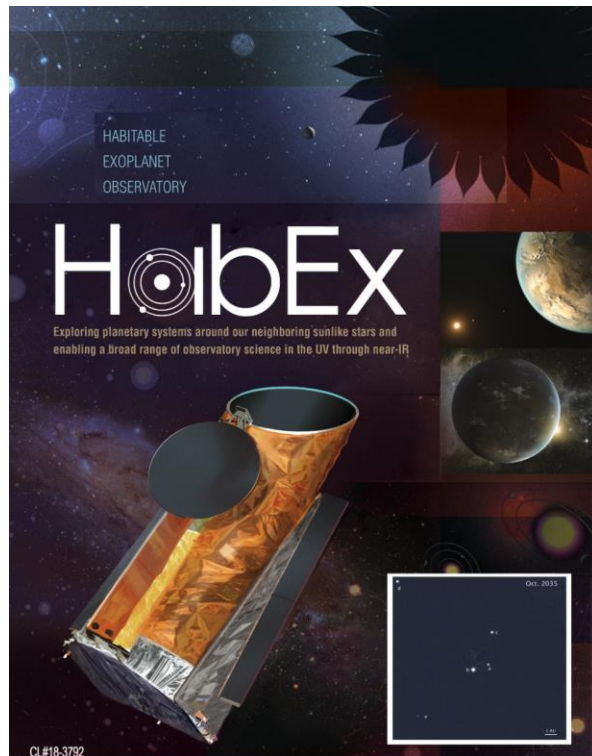
Making a new instrument today represents decades of work, requires extreme endurance (not much is comparable)

Making them many at the same time requires being Gary S. Varner

He got me into high resolution single photon imaging devices..... For NASA...



Continued development of UV MCP detectors will improve performance and packaging in the coming years. In 2012, a NASA Strategic Astrophysics Technology (SAT) grant was awarded to raise the TRL of a 50 mm square cross-strip MCP detector from 4 to 6. The team was also funded in 2016 with a follow-on SAT to scale this detector to a flight qualified 100×100 mm format (Vallerga et al. 2016). Even larger formats (200×200 mm) are also being developed. MCP detectors currently baselined for HabEx are TRL 5.



18 July 2016

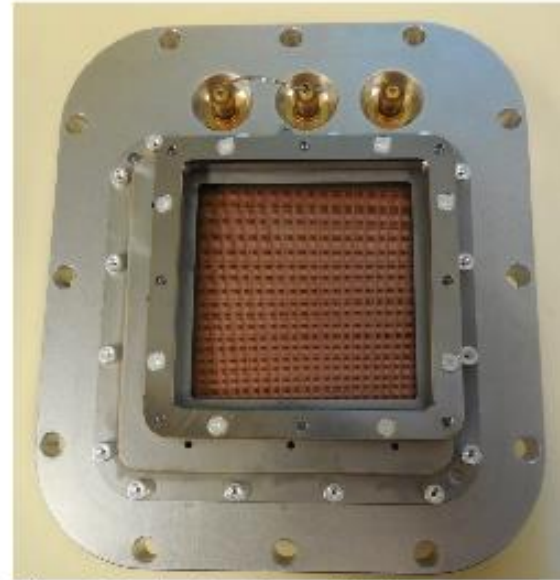
Development of a flight qualified 100 x 100 mm MCP UV detector using advanced cross strip anodes and associated ASIC electronics

John Vallerga, Jason McPhate, Anton Tretsin, Oswald Siegmund, Rick Raffanti, Harley Cumming, Andrej Seljak, Vihtori Virta, Gary Varner



Future mission: Habitable exoplanet observatory

Example: Blue haze bands in Pluto's atmosphere



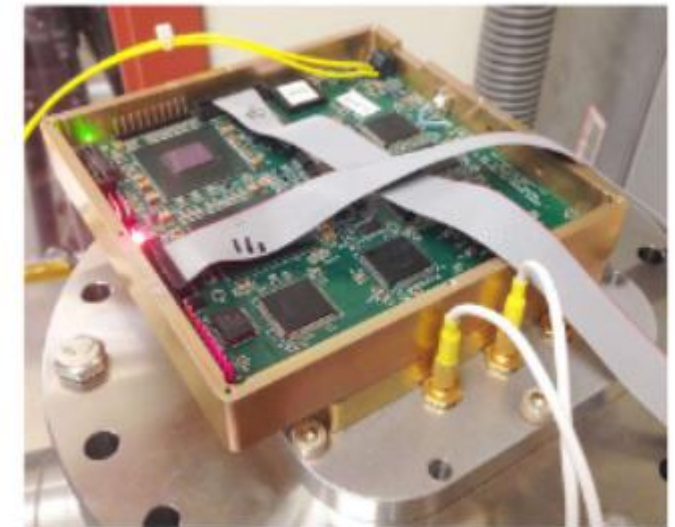
It started 2012, fueled by 2 consecutive NASA SAT grants.
(University of California, Berkeley, SSL, Techne instruments, Nalu Scientific)

UH members: Gary Varner, Michael Cooney,
Andrej Seljak, Harley Cumming,
Vihtory Virta, Gang Liu

In 5 years:

- > 4 ASICs
- > 3 readout systems
- > 11 papers
- > 2 master thesis

The program is still funded and we are working on a potential renewal





Andrej Seljak <andrejs@hawaii.edu>

to Gary ▾

Hello Gary,

Lecture went well, Matt is covering the Lab until 15.00h, I will take over the last 30min.

I gave them the lab work and problem set, as well as collected the previous homework.

Andrej



Gary S. Varner <varner@phys.hawaii.edu>

to me ▾

Hello Andrej,

Excellent, thanks.

Could you please leave the exams to grade in my mailbox in the photocopier room (Peter Huang's office) ? [so I can pick up on Sunday and grade then]

Thanks,
Gary

slightly late for 9am meeting 📧 Inbox x



Gary S. Varner <varner@phys.hawaii.edu>

to Bronson, Michael, Michael, Mike, Harley, Andrej, me ▼

Hi all,

I had a spontaneous teleconference at 7am this morning and have been running behind since. Will be a few minutes late.

Cheers,

Gary

. We developed chips faster than we ever were able to publish?!

Re: Thesis draft - one reference replacement 📧 Inbox x



Gary Varner <varner@phys.hawaii.edu>

to Khanh, Matt, me, Oskar ▼

Hi Khanh,

Reference 8 is not a kosher reference, as it is unfindable.

Since we've not actually written up a decent version of the TARGETX, at least this article describes the general TARGET architecture:

[TARGET: A digitizing and trigger ASIC for the Cherenkov telescope array](#)

[CTA Consortium \(S. Funk \(Erlangen - Nuremberg U., ECAP\) et al.\)](#). Oct 5, 2016. 6 pp.

Published in AIP Conf.Proc. 1792 (2017) no.1, 080012

Which is available on the arXiv as

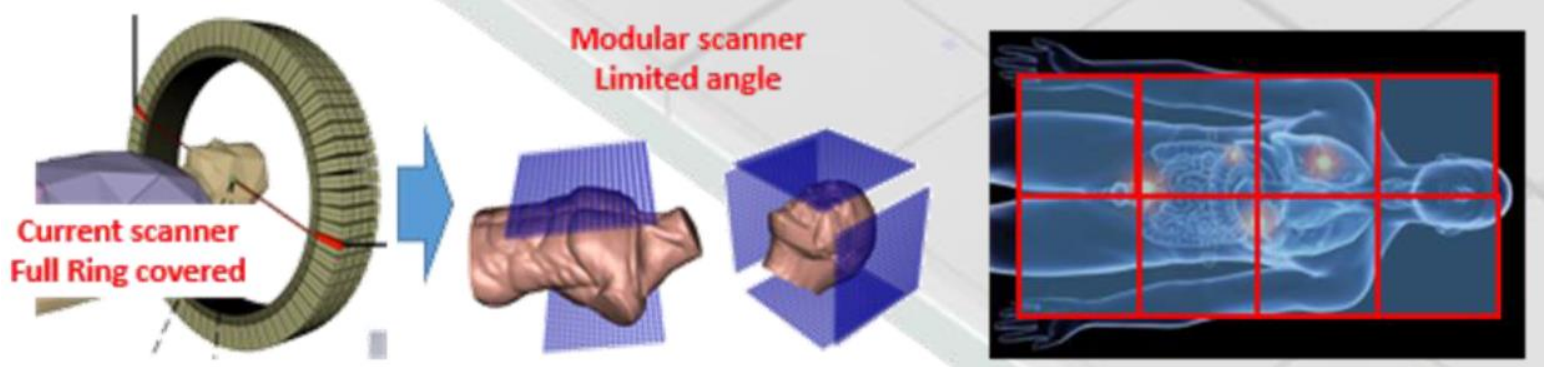
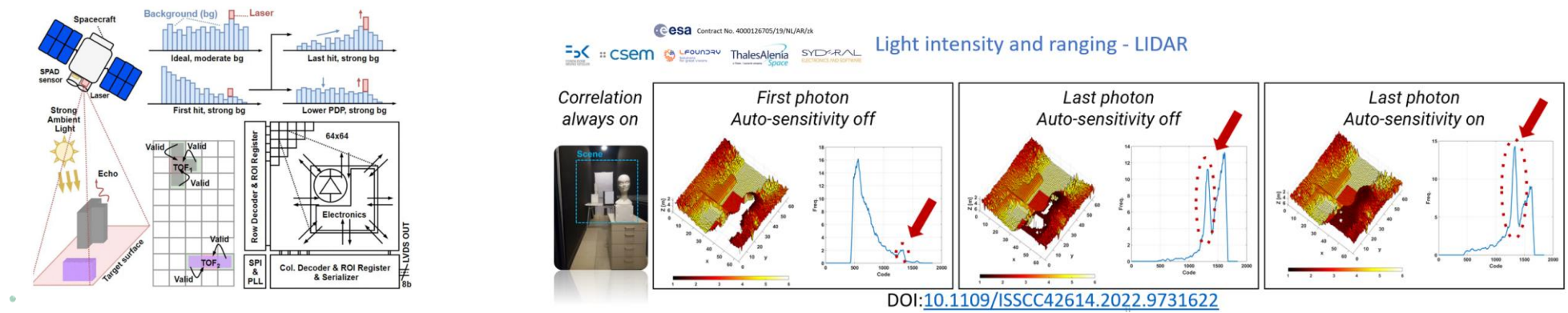
<http://arxiv.org/pdf/1610.01536.pdf>

Cheers,

Gary



Since mid 2018, my work resonates around ASICs for various applications, thanks to Gary!



The usual HEP detectors upgrade development at KEK and CERN

Chips ACT implementation in Slovenia



January 2023, Hawai'i