

Prof_Albert_Theuwissen_said_that_Hagiwara_invented_Pinned_Phodiode

Private Communications with Prof. Albert Theuwissen
on the invention of Pinned Photo Diode (PPD)

Peter Noble invented the in-pixel active source-follower
type current amplifier circuit. Fossum did not invent it.
Yoshiaki hagiwara invented the Pinned Photo Diode with
the vertical OFD function. Teranish did not invent it.

Fossum and Teranish are incorrectly attributed to the modern
CMOS image sensor invention and development efforts.
Fossum and Teranish are fakes.

Hi Yoshi,

I do agree with you that the structure
you invented in 1975 and developed in 1978
is indeed a PPD, maybe not called that way
at that time and also invented for some other
purpose (such as VOD).

But it still remains a PPD !

At Philips, in the late '70s a very similar structure
was implemented in the CCDs, this was before
I joined Philips in 1983.

So yes, there were several p⁺/n⁻/p⁻ structures known
by the time that Teranishi issued his 1980 patent .

I fully agree to that.

Looking forward to hear from you,

Albert

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> FROM: hagiwara [mailto:hagiwara-yoshiaki@aiplab.com]
> SENT: Tuesday, July 10, 2018 3:19 PM
> TO: 'a.theuwissen'
> SUBJECT: RE: NEC-SONY Patent War
>
> Hi, Albert,
>
> how are you ?
>
> I am very mad at Fossum's 2014 paper
>
> which I found just a few weeks ago.
>
> I am now 70 years and completely retired..
>
> Fossum did not quote the very important
>
> Pain's work at JPL CalTech
>
> on the Global Shutter CMOS image sensor ...
>
> Yoshi

From: Albert Theuwissen

Sent: Thursday, November 22, 2018 5:48 PM

To: hagiwara-yoshiaki@aiplab.com

Subject: Fwd: I just visited SONY Kumamoto Tech Center

Dear Yoshi,

Thanks for your mail.

I remember the discussion during IISW2013
when Mike Tompsett gave a keynote speech.

He owns the patent entitled "Charge-Couple Device Image Sensor",
while his 2 colleagues Boyle and Smith received in 2009 the Nobel
Prize for the invention of the CCD Image Sensor.

Very much in contradiction, but unfortunately
that is sometimes the way things happen.

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What we also very often see is that a major invention is based on other things that happened around the inventor.

Sometimes the inventor is triggered by work of others in the same field.

The only advice I can give you :

do not put too much energy in this,
you cannot change history and
it only makes your frustration bigger.

But if I give talks and trainings about image sensors,
including the working principle of PPD,

I ALWAYS refer to (1) your work,

(2) Philips' work (which is more or less a copy of
what you did, but 1 or 2 years later than yours) and

(3) Teranishi's work.

So I do not forget you !!!

I think that the active pixel sensor
with an in-pixel source follower
is described for the first time
by Peter Noble, in 1968
or maybe already in 1966.

He just published a book about his invention.

BTW, I am a bit jaelous on you

because you had the opportunity
to visit the fab of Sony in Kumamoto.

This is one of my dreams
to ever visit the Sony's fab,
including their test facilities.

Wishing you all the best in everything you do !!

Regards,

Albert.
