International Image Sensor Society
Exceptional Lifetime Achievement Award

Gene P. Weckler

The Board of Directors of the International Image Sensor Society (IISS) is pleased to announce the creation of a new award, the Exceptional Lifetime Achievement Award. This Award is made to a member of the image sensor community who has made substantial sustained and exceptional contributions to the field of solid-state image sensors over the course of their career. The award will be made preferentially to someone in the global region of the meeting (Americas, Europe or Asia) as the IISW moves around the globe.

The IISS Exceptional Lifetime Achievement Award for 2013 is presented to Mr. Gene Weckler. Gene Weckler's biographical information is presented below. Among other significant contributions, in 1967 Gene published a seminal paper entitled: "Operation of pn junction photodetectors in a photon flux integrating mode," which was published in the IEEE J. Solid-State Circuits. Nearly every image sensor built since then has operated in this mode. Gene also published several early papers on what we now call passive pixel image sensors during his time at Fairchild. In 1971 he co-founded RETICON to further commercialize the technology. RETICON was acquired by EG&G in 1977. Gene stayed with EG&G for twenty years serving in many management roles including Director of Technology for the Opto Divisions. In 1997 Gene co-founded Rad-icon to commercialize the use of CMOS-based solid-state image sensors for use in x-ray imaging. Rad-icon was acquired by DALSA in 2008. Gene retired from full time work in 2009 but continues as a member of the Advisory Board for the College of Engineering at Utah State University. He is a Life Member of the IEEE and a member of the SPIE. The IISS is very pleased to recognize Gene Weckler's many contributions to the field of solid-state image sensors over the course of his career through this new award.

Gene P. Weckler Biography

EG&G RESEARCH LAB, Las Vegas (summer of 1957)

Student Engineer, Major Assignment, measure the attenuation and phase shift of a nanosecond pulse as it traveled through the TWT deflection structure of a very fast oscilloscope. It was this experience that got me a position at Shockley Transistor Corp.

SHOCKLEY TRANSISTOR CORPORATION. (1959 to 1962).

Supervisory Engineer. Major Assignments: Supervised a group working on applications and characterization of pnpn (4 layer diode) diodes. Interfaced directly with customers providing application support. Designed and developed production test equipment for 4 layer diodes. Wrote the first and probably the last mil-spec for the 4 layer diode.

OPTO-ELECTRONIC DEVICES, Inc. (1962 to 1963).

Product Development Engineer. Responsible for the development, evaluation and application of II-VI compound photoconductor devices. The company was under financed and not well managed.

FAIRCHILD SEMICONDUCTOR, Research & Development Laboratories (1963 to 1971).

I was a Member of the Technical Staff working on the development of processes and structures to improve the fundamental characteristics of silicon photodetectors. This work led to the development of the first practical silicon imaging device where bandwidth was traded for gain, i.e. it operated in photon flux integration mode, thus providing signal gain at the pixel level. Combining the pixel gain with the reduced switching noise provided by recently developed silicon gate technology the switching noise was reduced to a useable level and we had a very high performance silicon pixel.

RETICON Corporation (1971 to 1997).

In 1971 John Rado, Edward Snow, and myself founded Reticon Corporation bringing silicon imager sensor technology to the marketplace. Intel was our principal investor giving Reticon access to their silicon gate technology. Reticon pioneered several other new technologies. First was the image sensor technology based on the photon flux integration pixel. The second major new technology brought to the marketplace by Reticon was the switched capacitor filter technology. Both products needed the silicon gate technology. Reticon Corporation was purchased by EG&G Corporation in 1977. In 1987 I assumed a staff position at EG&G Optoelectronics Group I as Director of Technology for Opto divisions, which included Reticon. My responsibilities included, the tracking of technology that could be of interest to the Group, the development of synergism within the Groups, overseeing cooperative developments with Universities and other Centers of Excellence, and the technical evaluation of future business opportunities. In 1990 I began the development of amorphous silicon technology with a goal of making large flat panel imagers to be used in digital radiography.

Rad-icon Imaging Corporation (1997 to 2009)

In 1997 I founded Rad-icon Corporation. My objective was to fabricate large CMOS chips that could be assembled into even larger panels that would compete with amorphous silicon panels. The CMOS imagers offered both cost and performance advantages over amorphous silicon panels. Rad-icon was a success and was acquired by Dalsa Corporation in 2008.

PROFESSIONAL ACTIVITIES:

Institute of Electrical Engineers Senior Life Member
Society of Photographic Instrumentation Engineers Member
Advisory Committee for the Computer Science Department, University of Utah, 1986-88
Advisory Board, College of Engineering Utah State University, 1986-present
Distinguished Alumnus Award, 1988 Department of Electrical Engineering, Utah State Univ
Member of the Board of Directors, Dalsa Corp.(TSE), Waterloo Canada, 2000 to 2003.
Member of the Board of several private companies in Silicon Valley

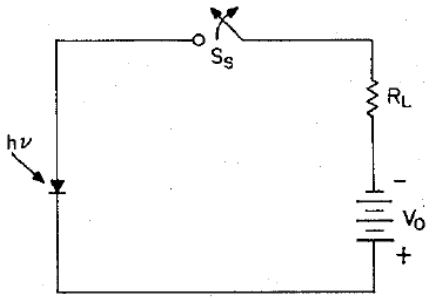


Fig. 1. An idealized circuit for analyzing storage mode operation of a *p-n* junction diode.

Weckler 1967

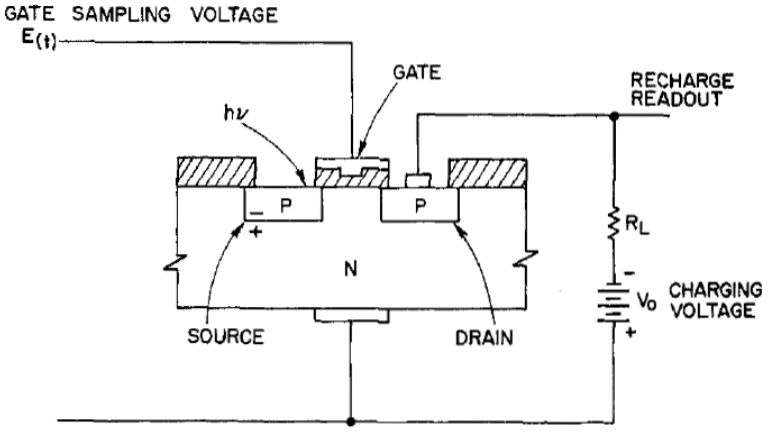
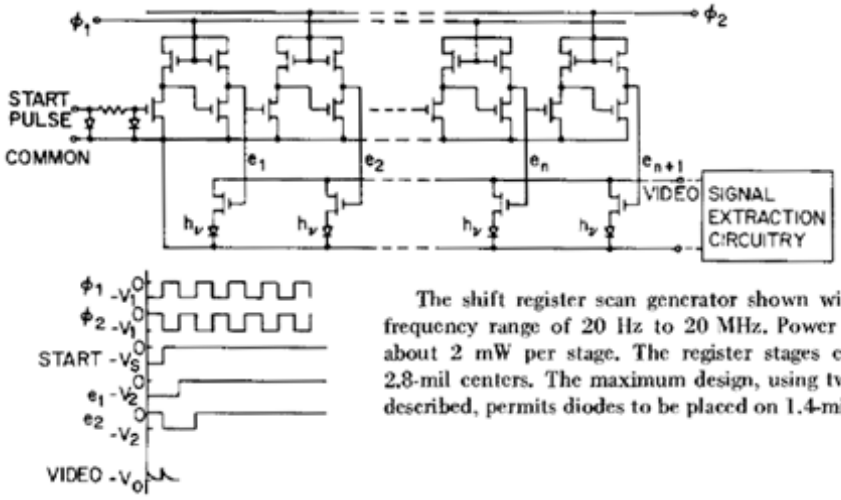


Fig. 3. Practical structure using an MOS switch for charging the photodiode.[8]

Dyck and Weckler 1968



The shift register scan generator shown will operate over a frequency range of 20 Hz to 20 MHz. Power requirements are about 2 mW per stage. The register stages can be placed on 2.8-mil centers. The maximum design, using two video lines, as described, permits diodes to be placed on 1.4-mil spacing.

FIGURE 1—Circuit diagram of the self-scanned photodiode array.

Dyck and Weckler 1968

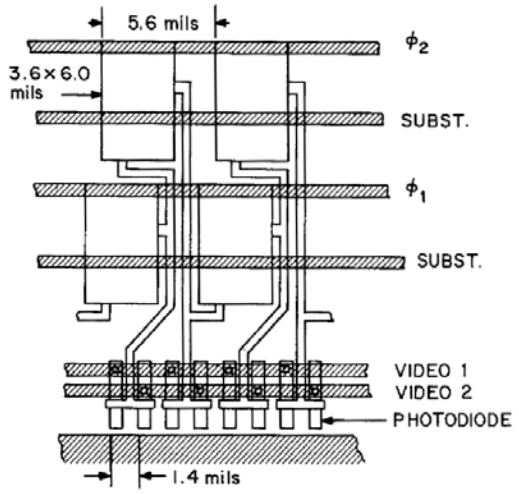


FIGURE 3—A high-resolution photodiode array design featuring two video output lines.

Weckler and Dyck 1971

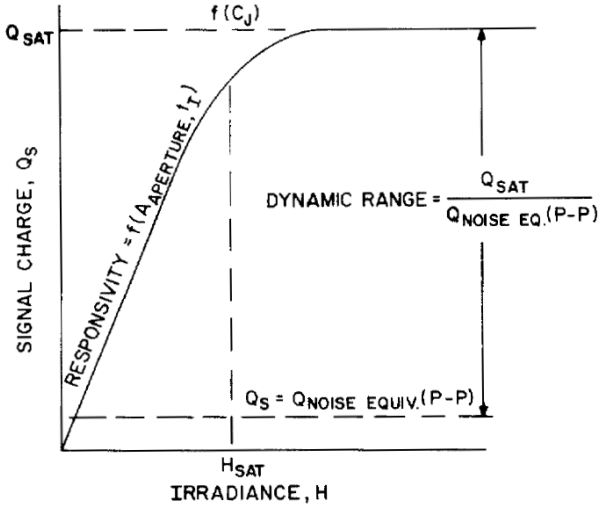
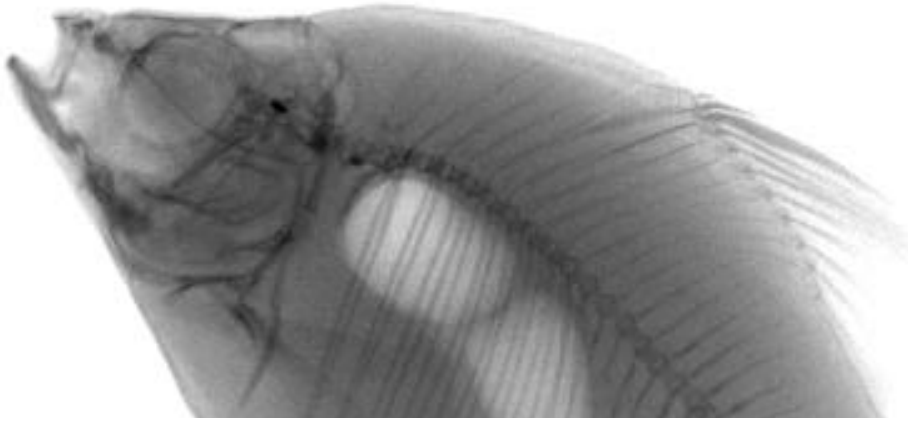


FIGURE 4—Idealized response curve for the photodiode.

Weckler and Dyck 1971



Graeve and Weckler 2001