40 Years of SID Symposia – Nurturing Progress in Projection Technology

Pre-SID

Image Generation Devices

1939
Eidophor - oil film light valve
Swiss Fed. Inst. Of Tech.

1958
Talaria - Single electron gun writing (3) diffraction gratings on oil-film surface
General Electric

1932-36
Curved faceplate CRTs for projection
Philips, RCA, Fernsehen

Projection Components/ Architecture

Projection Lenses

Illumination Sources

Projection Screens

Products & Applications

1937
Projection CRT systems demonstrated
Philips, RCA, Fernsehen

1958
Slide Scratcher displays for command & control
FF&M, Northrop

1946
Rear-screen CRT PTV
RCA

1960's

Image Generation Devices

Projection Components/ Architecture

Projection Lenses

Illumination Sources

1960's
Xenon arc lamp for projection
Westinghouse

Projection Screens

Products & Applications

1960-63
Rapid-process film projection systems
ITT, Hughes, Burroughs

1970's

Image Generation Devices

1974
ILA -Photoaddressed reflective liquid crystal light valve
Hughes

1978
Liquid crystal on silicon (LCoS) display
STL, Hughes

Projection Components/ Architecture

Projection Lenses

1979
f/1.0 aspheric projection lenses
US Precision Lens

Illumination Sources

Projection Screens

1979
Lenticular, black stripe screens for rear-projection
Freen Screen

Products & Applications

1976
ILA projector with fiberoptic-coupled CRT input
Hughes

1973
Giant VideoBeam CRT with integrated Schmidt optics
Advent

1978
dual Talaria 1000-line high lumen projector
General Electric

1980's

Image Generation Devices

1982
High brightness 7" PRT CRT with chemically strengthened glass
Hitachi

1987
Digital Micromirror Device (DMD) microdisplay
Texas Instruments

1986
p-Si TFT LCD projection light-valve
Seiko Epson

Projection Components/ Architecture

1982
Liquid coupling & cooling of flat CRT faceplate
Sony

1989
(3) LCD projection system; X-dichroic re-combining prism
Seiko Epson

1985
CRT Liquid coupling/ cooling in rear PTV
Philips

Projection Lenses

1986
Lens system for aspheric CRT faceplate
Hitachi

Illumination Sources

Projection Screens

1983
Black stripe rear screen with Fresnel and lenticular lenses
Dai Nippon

Products & Applications

1980
50" consumer rear projection TV
GTE Sylvania

1988
Transmissive a-Si TFT LCD projection system
Sharp

1988
Overhead projector (OHP) LCD panel
N-View/Proxima/InFocus

1988
3-color ILA video projector
Hughes

1990's

Image Generation Devices

Projection Components/ Architecture

1991
Single LV angular- color-separation projection
Sharp

1996
Polarization conversion; double fly-eye integration, PCS
Seiko Epson

1993
Scrolling color single light-valve rear projection technology
Philips

1996
TIR Prism for DLP illumination
US Precision Lens

1999
Wire grid polarizer & beam splitter
Moxtek

1997
Polymer retarder stacks for selective (color) polarization
Colorlink, Inc.

Projection Lenses

1992
Ultra wide angle f/0.77 lenses
US Precision Lens

Illumination Sources

1991
Metal halide discharge projection lamp
Iwasaki Electric

1993
UHP High-pressure mercury discharge lamp
Philips

Projection Screens

1999
Rear projection screen for LCD projection
Toppan

Products & Applications

1990
a-Si LCD very high light output projector
Barco

1995
(3) panel p-Si front screen projector
InFocus/Seiko Epson

1997
Front screen, light weight (6.8 lbs.) single DLP projector
InFocus

1995
First LCoS projector - command and control centers
IBM

1999
2000 pixel D-ILA LCoS Proj.
JVC

2000's

Image Generation Devices

Projection Components/ Architecture

2001
Scrolling Color Recapture (color wheel)
Texas Instruments

Projection Lenses

Illumination Sources

2001
Arc stabilization of short-arc (UHP) lamps
Philips

Projection Screens

Products & Applications

2000
DLP cinema projectors
Barco/Christie /Digital Projection

SID Award Recipients – Projection Displays

Karl Ferdinand Braun Prize	SID Fellows	Special Recognition
Willian E. Glenn	William P. Bleha	William E. Good
William E. Good	Willian E. Glenn	
Larry J. Hornbeck	William E. Good	
Thomas T. True	Frederic J. Kahn	
	Shinji Morozumi	
	Edward H. Stupp	
	Pete Vlahos	
	Eiichi Yamazaki	

Legend

CRTs	CRT projection and associated technology milestones
Oil Films LVs	Oil fill light valve projectors
LV/ILA LC	ILA liquid crystal light valve
DLP/DMD	Digital Light Processor (Deformable Mirror Device)
LCDs	LCD projectors (transmissive) and associated milestones
LCoS	LCoS projectors (reflective)

CRTs | Oil Films LVs | LCLV/ILA | DLP/DMD | LCDs | LCoS