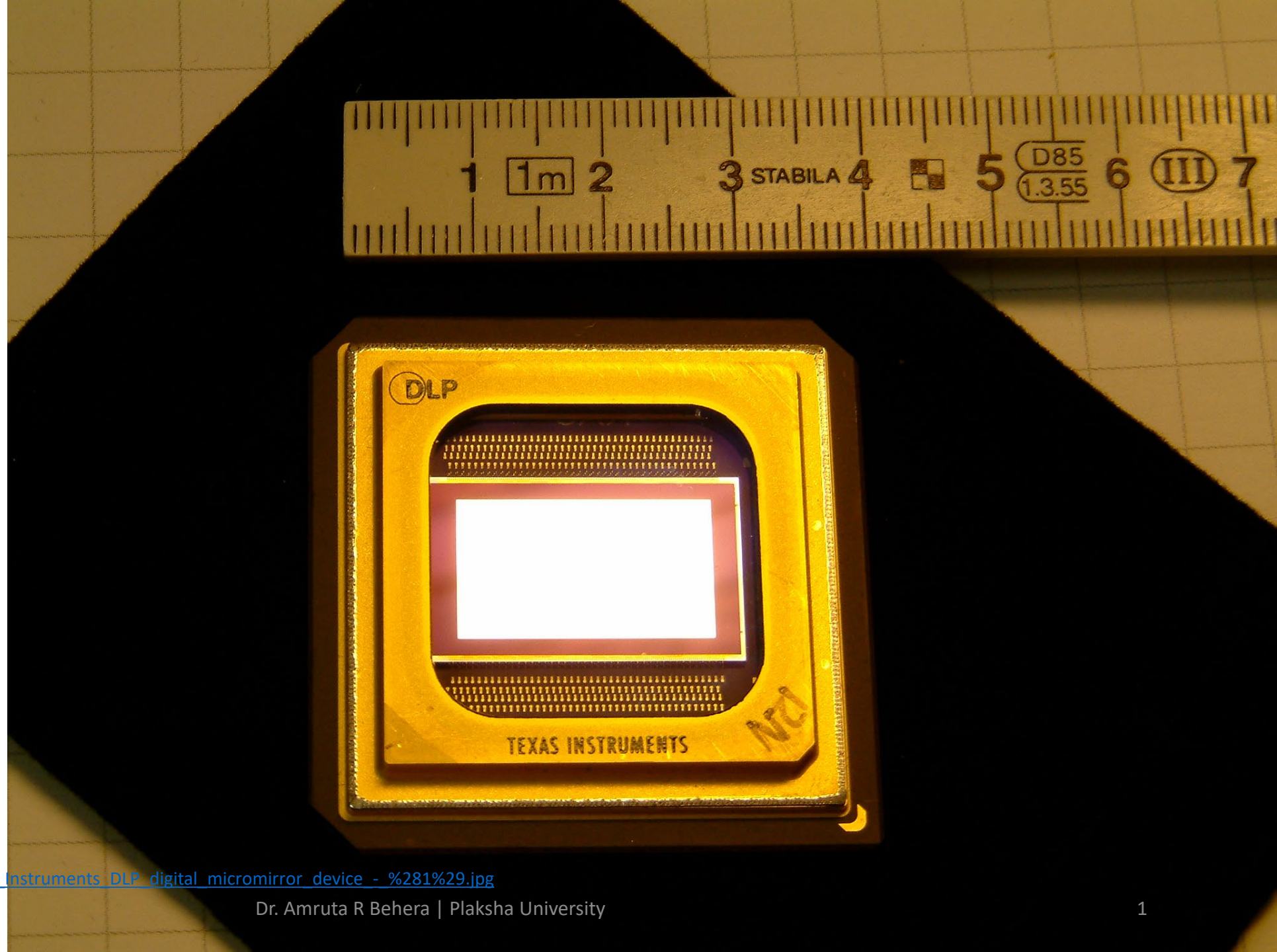
Case Study

DLP Chip



https://commons.wikimedia.org/wiki/File:Texas_Instruments_DLP_digital_micromirror_device_-_%281%29.jpg

Larry Hornbeck shows off his Oscar-winning technology at the Academy of Motion Picture Arts and Sciences' Scientific and Technical Achievement Awards (OSCAR)

https://spectrum.ieee.org/the-oscar-goes-to-engineer-larry-hornbeck-and-his-digital-micromirrors

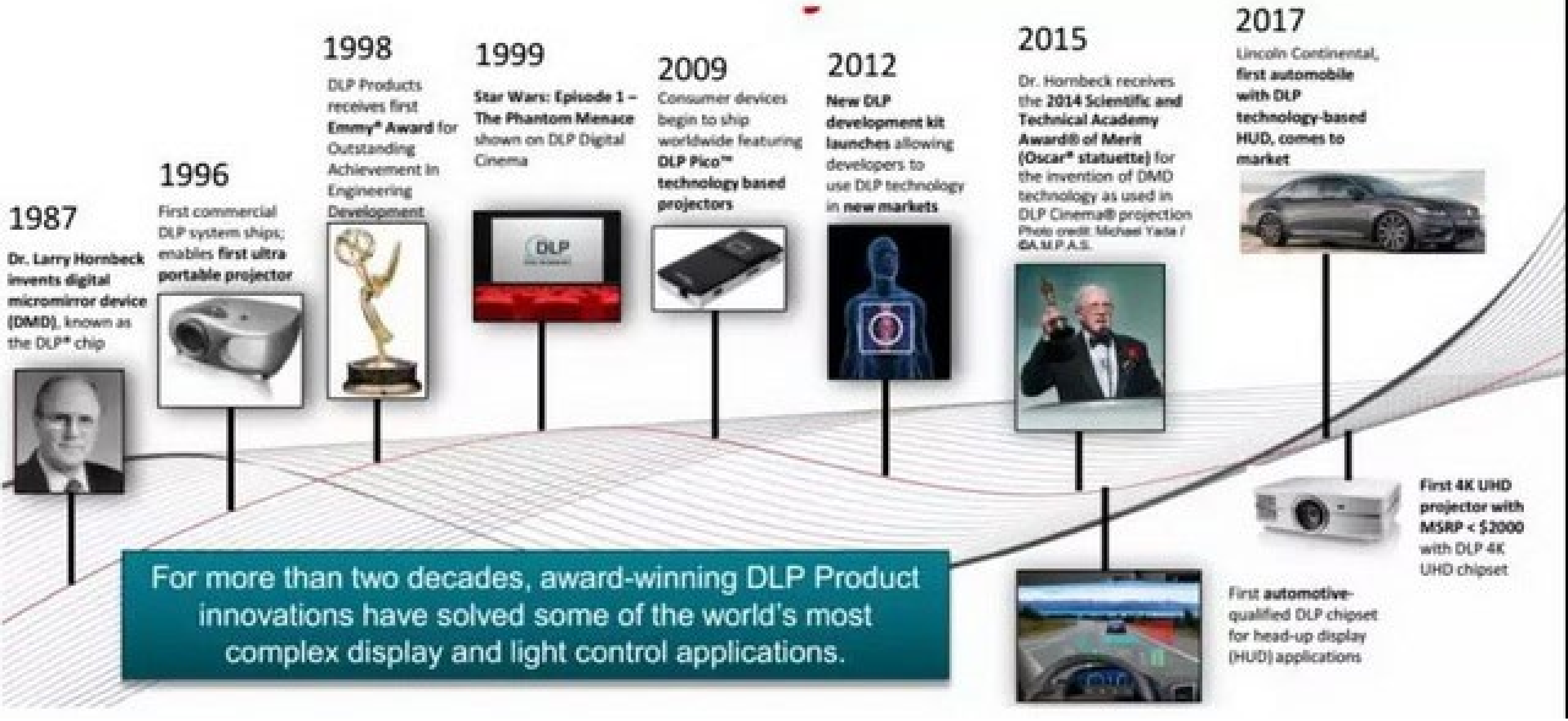
Its development began in 1977 with the forming of a small team at Texas Instruments headed by noted physicist Larry Hornbeck.

1987, the first device was created at TI

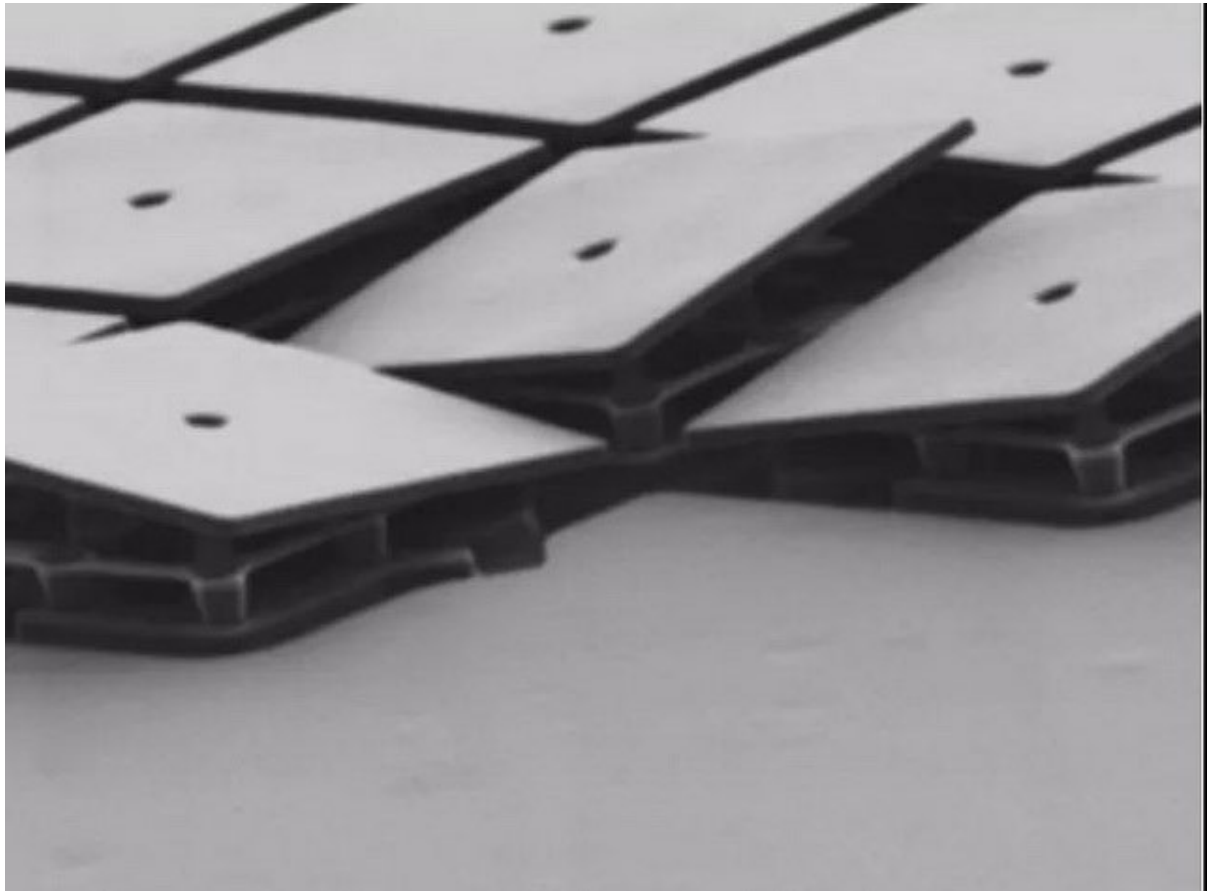
1991, patent was granted to Hornbeck

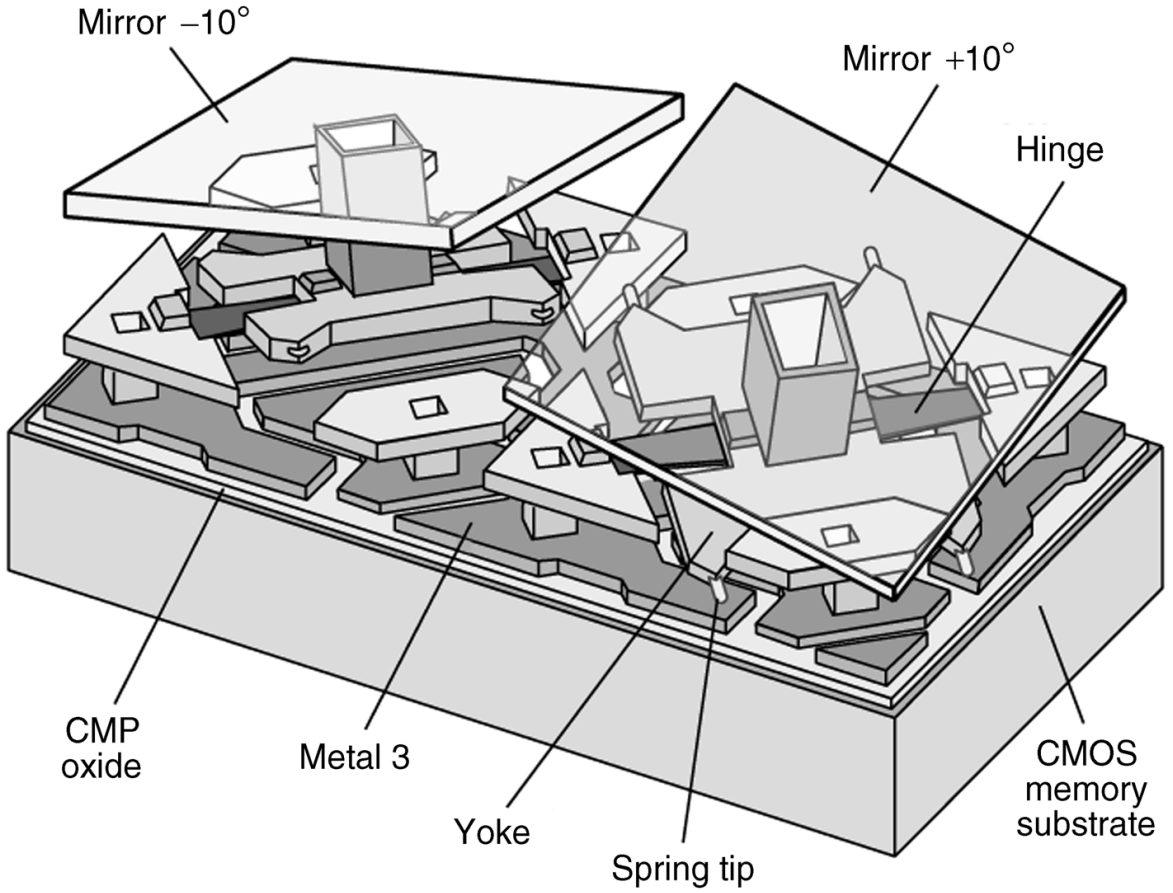
ASME Mechanical Engineering Historic Landmark: 2008

https://www.asme.org/about-asme/engineering-history/landmarks/243-digital-micromirror-device



http://www.eviewtek.com/en/a/news/jishuluntan/2020/1111/88.html

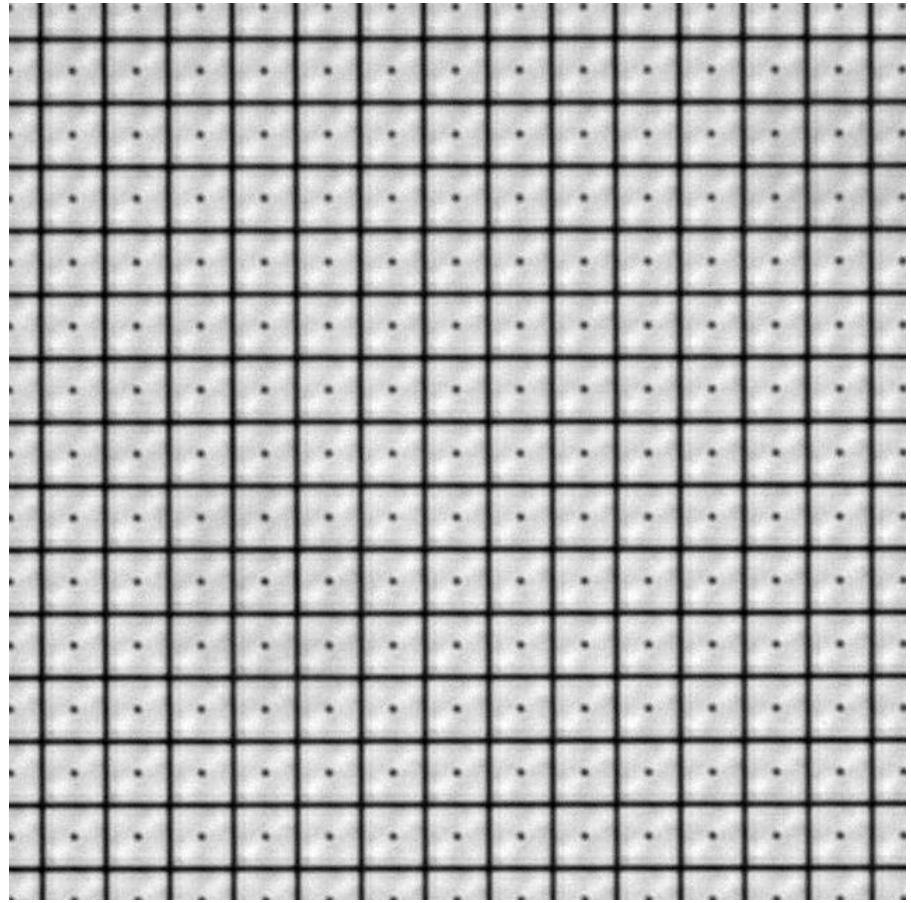




http://www.eviewtek.com/en/a/news/jishuluntan/2020/1111/88.html
www.mrs.org/publications/bulletin : MRS BULLETIN/APRIL 2001

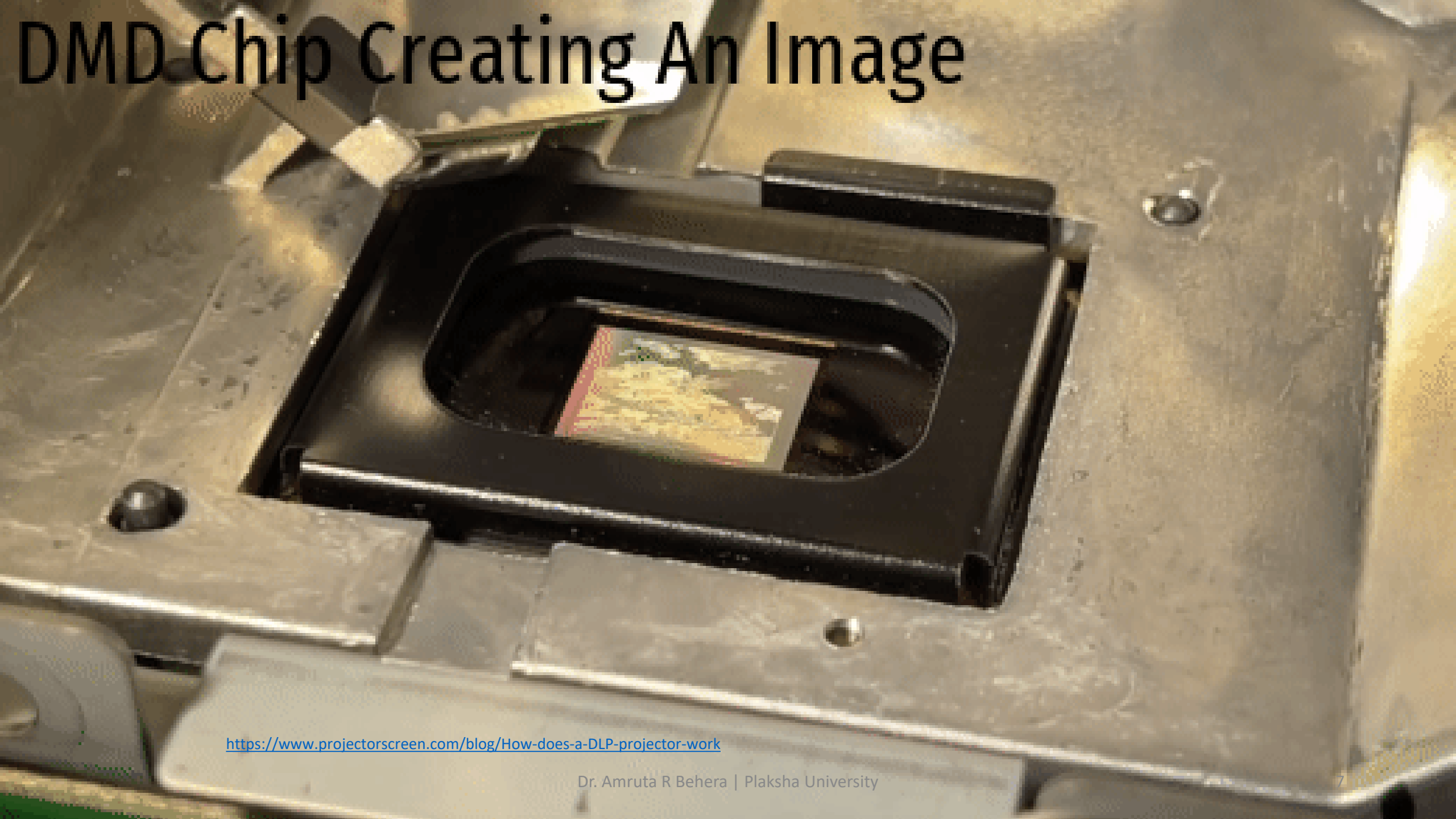
Functional overview

- Array of tiny mirrors (up to 2 million)
- Each mirror is 16µm x 16µm - corresponds to one pixel of
- projected image
- Each mirror pivots about a fixed axis - +10 to -10 Deg, total 20 Deg
- Each mirror acts as a digital light switch - Switching time <10µSec
- ON Light is reflected to desired target
- OFF Light is deflected away from target
- MEMS fabrication process similar to CMOS



https://www.powershow.com/view/3afa02-YjgwY/Digital_Micromirror_Devices_DMD_powerpoint_ppt_presentation
https://slideplayer.com/slide/1592835/
https://www.projectorscreen.com/blog/How-does-a-DLP-projector-work

DMD Chip Creating An Image



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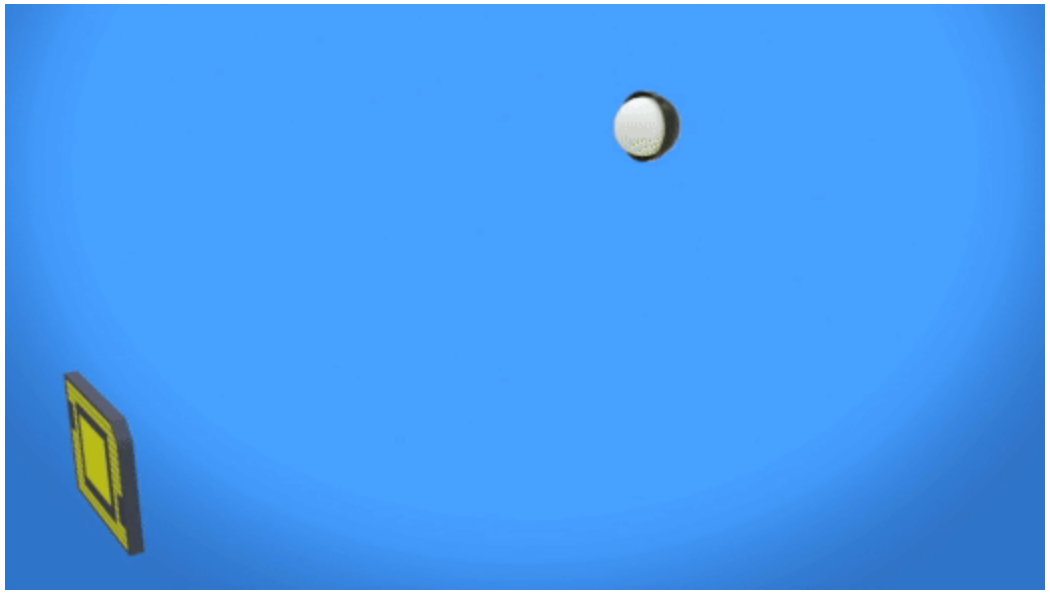
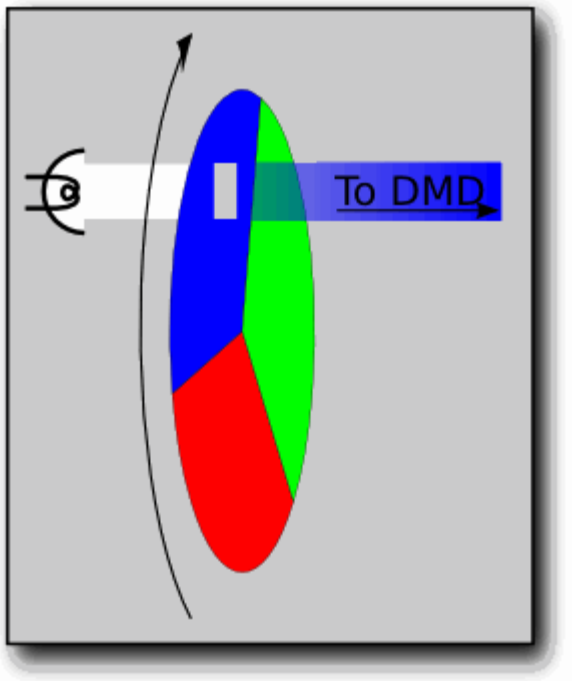
Working of a DLP Projector





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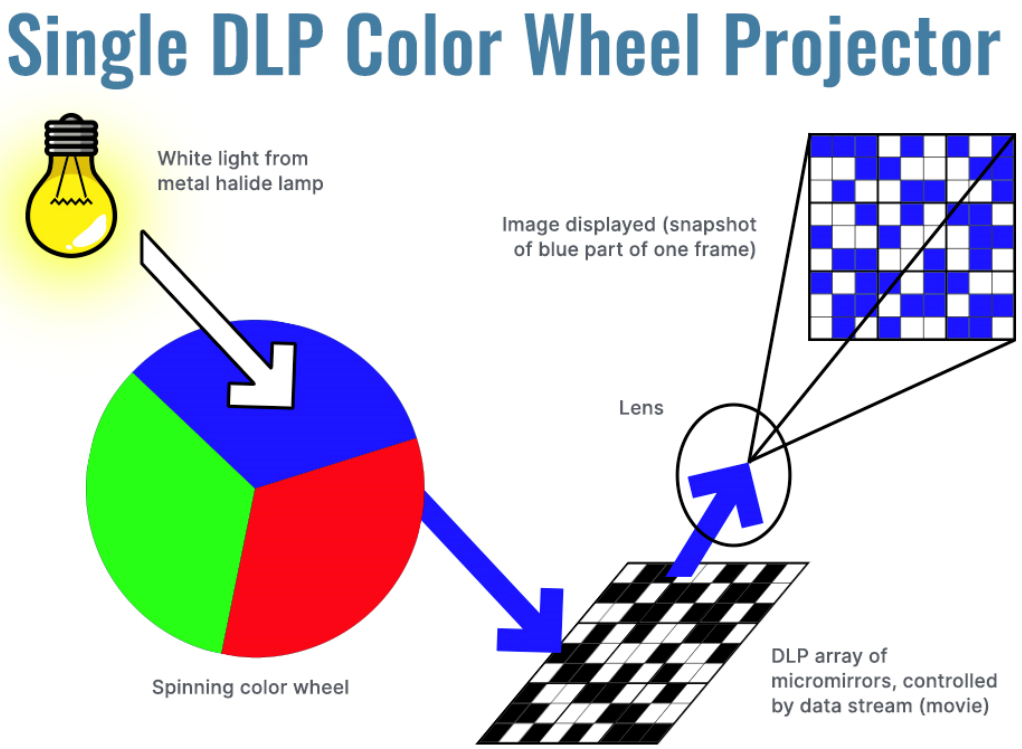

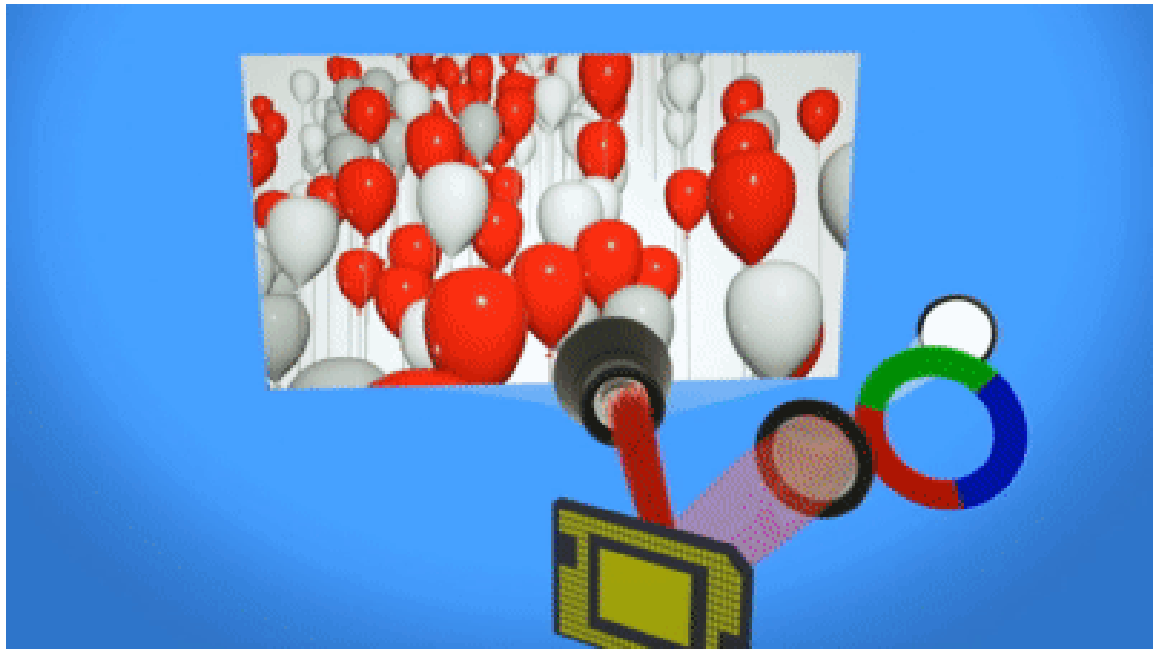

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