



Aplicatii nanofotonice in stocarea de date si nanolitografierea optica

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Unitati pentru capacitatea de stocare

❖ Terabyte [10^{12} bytes]

- 2 Terabytes: An academic research library ;
- 10 Terabytes: The printed collection of the US Library of Congress;

❖ Petabyte [10^{15} bytes]

- 2 Petabytes: All US academic research libraries;

❖ Exabyte [10^{18} bytes]

- 2 Exabytes: Total volume of information generated worldwide annually.
- 5 Exabytes: All words ever spoken by human beings.

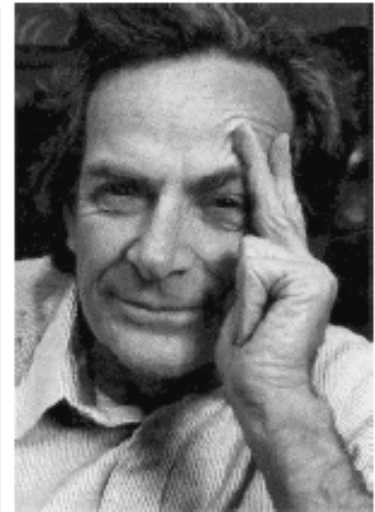
❖ Zettabyte [10^{21} bytes]

❖ Yottabyte [10^{24} bytes]

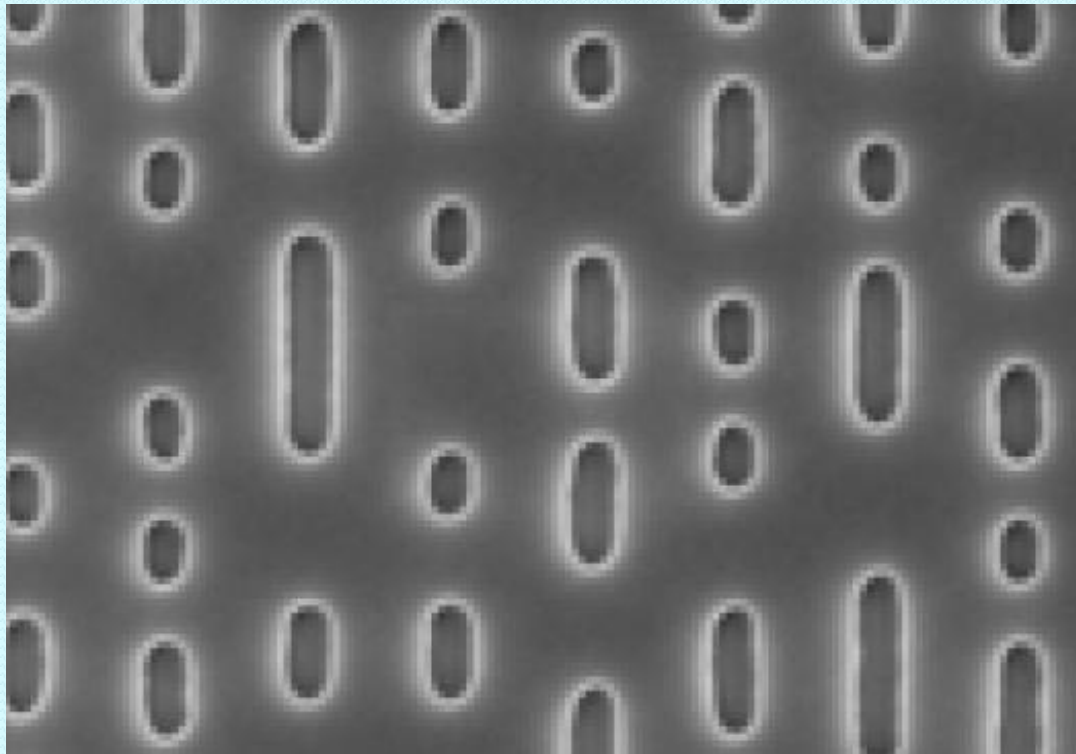
Viziunea lui Feynman

Suppose, to be conservative, that a bit of information is going to require a little cube of atoms $5 \times 5 \times 5$, that is 125 atoms. Perhaps we need a hundred and some odd atoms to make sure that the information is not lost through diffusion, or through some other process. I have estimated how many letters there are in the Encyclopaedia, and I have assumed that each of my 24 million books is as big as an Encyclopaedia volume, and have calculated, then, how many bits of information there are (10^{15}). For each bit I allow 100 atoms. And it turns out that all of the information that man has carefully accumulated in all the books in the world can be written in this form in a cube of material one two-hundredth of an inch wide -- which is the barest piece of dust that can be made out by the human eye. So there is *plenty* of room at the bottom! Don't tell me about microfilm!

Richard P. Feynman, December 1959

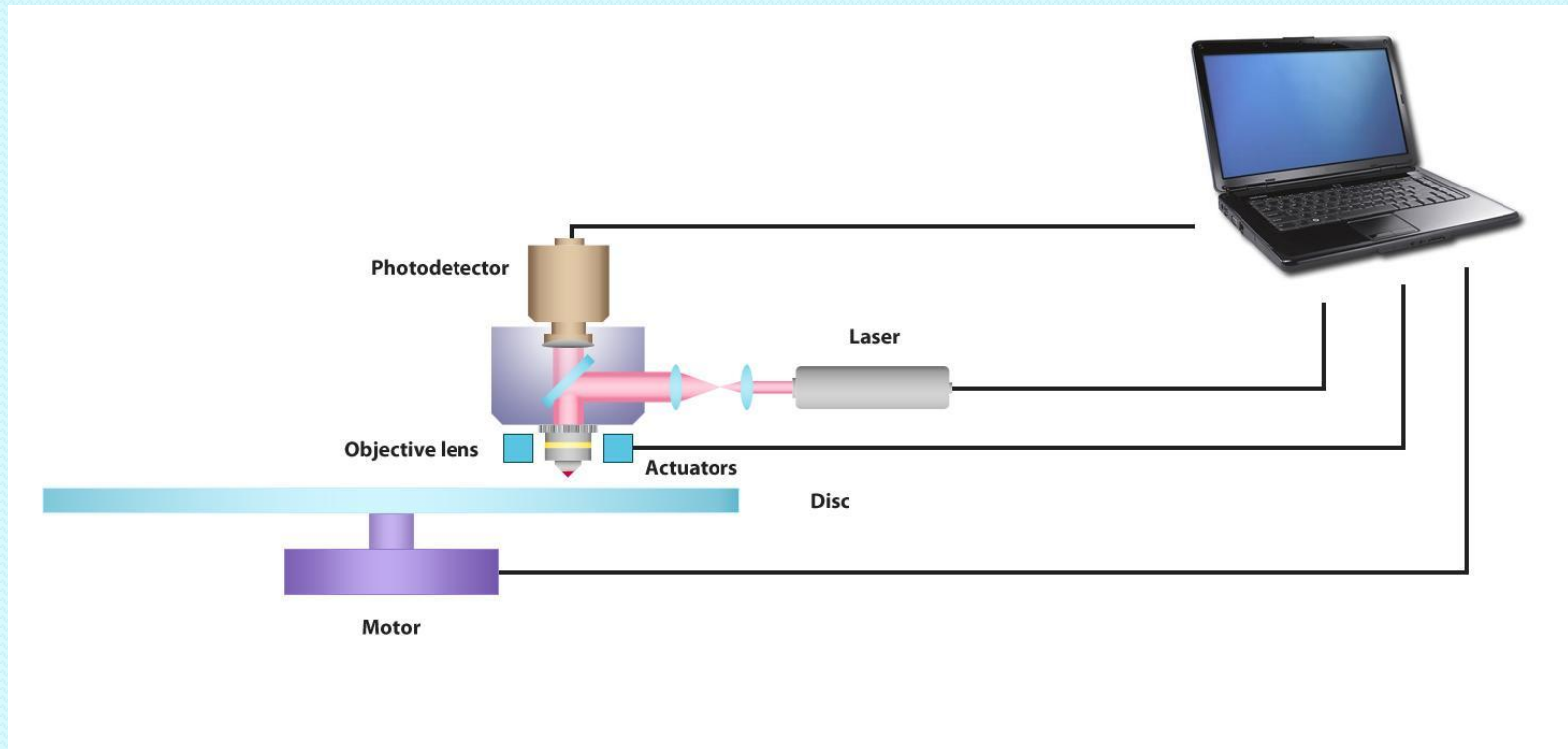


Discul Blu-Ray

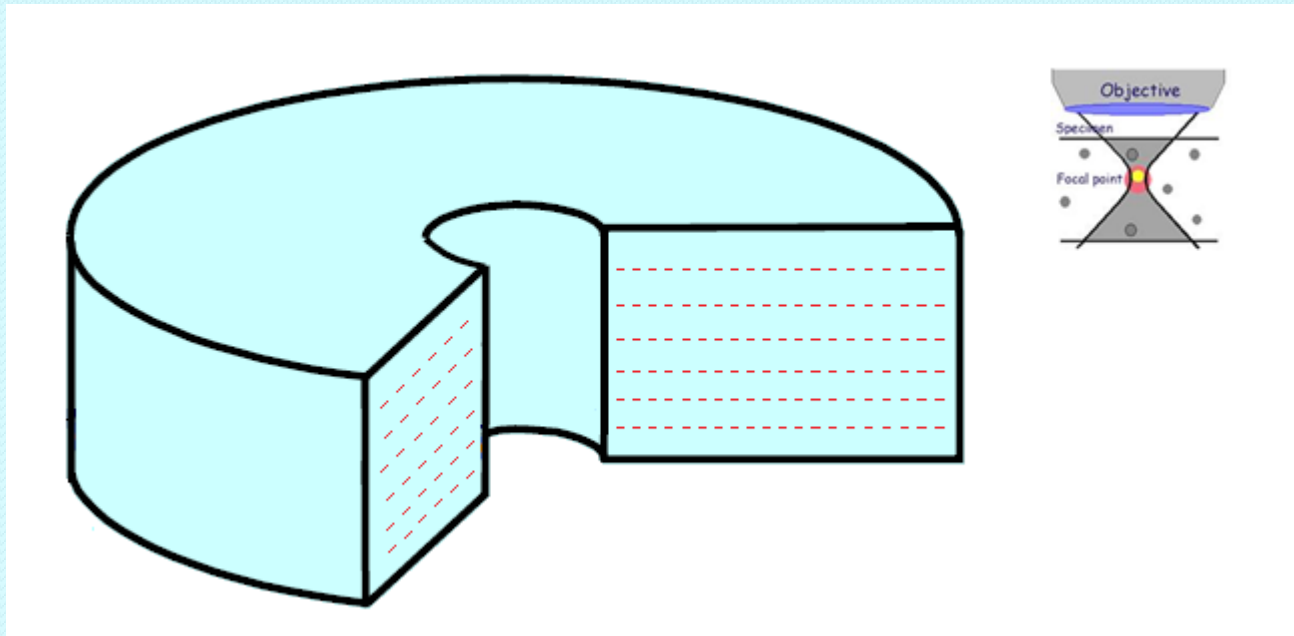


Imagine SEM; Distanța dintre două piste: 320 nm
Lungimea minimă a unei înregistrări: 149 nm

Schema testerului dinamic



Structura discului multistrat



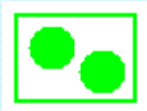
Mecanismul de scriere in vitroceramica fluorescenta fotosensibila



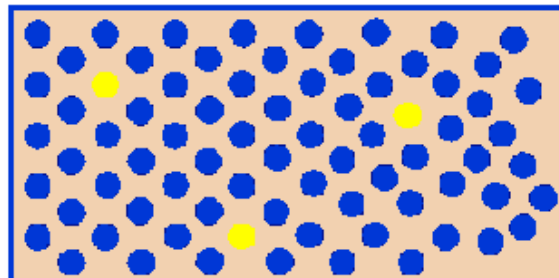
Eu^{3+}



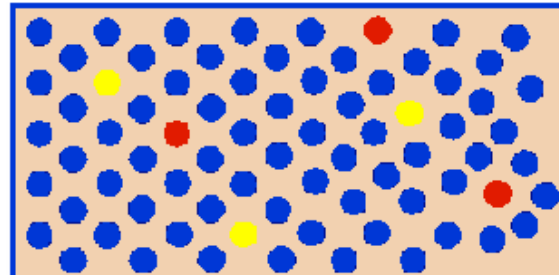
Ag^0



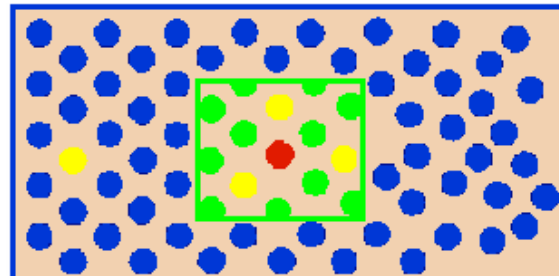
NaF



Sticla precursorare

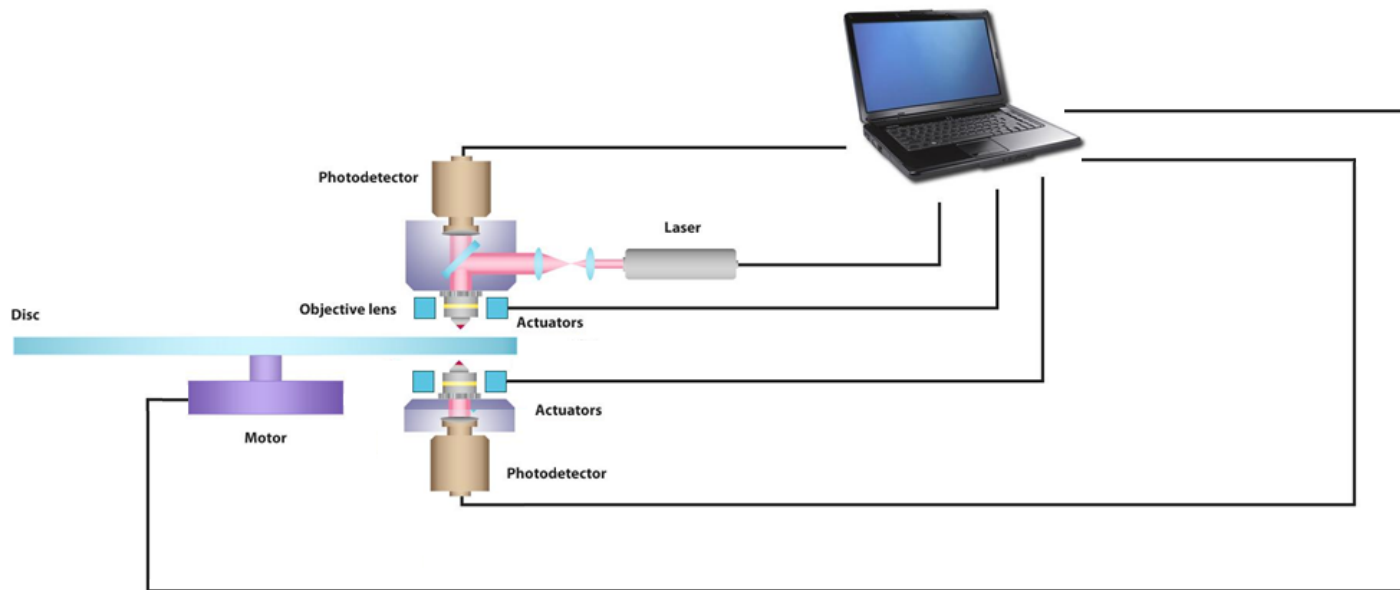


Sticla iradiata

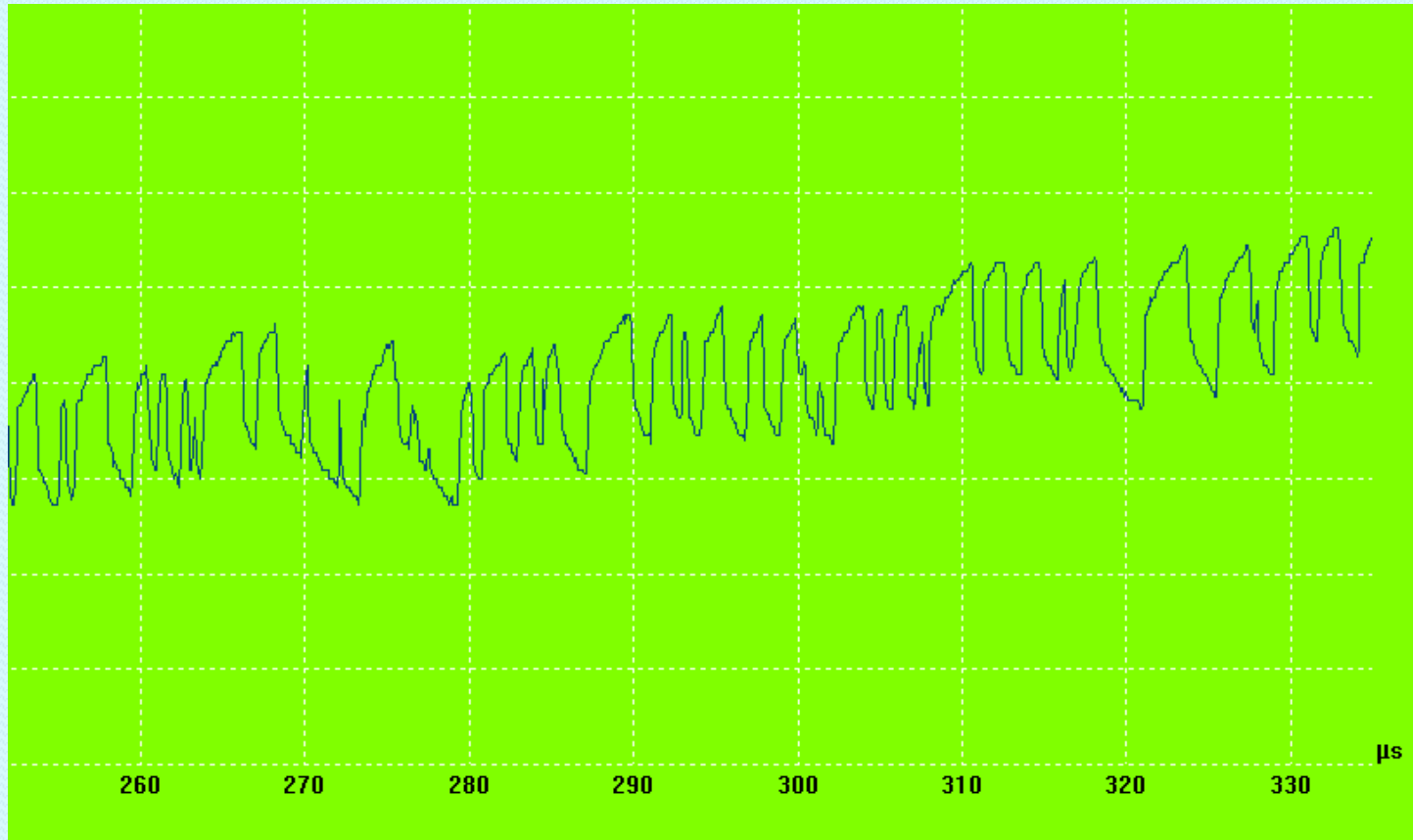


Sticla iradiata si tratata termic

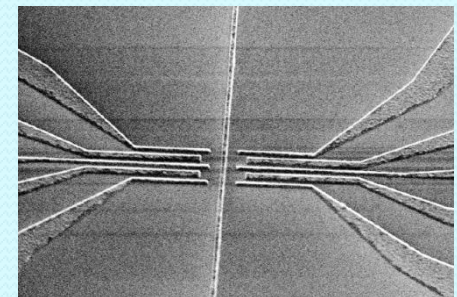
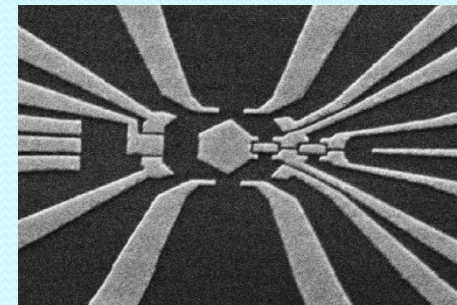
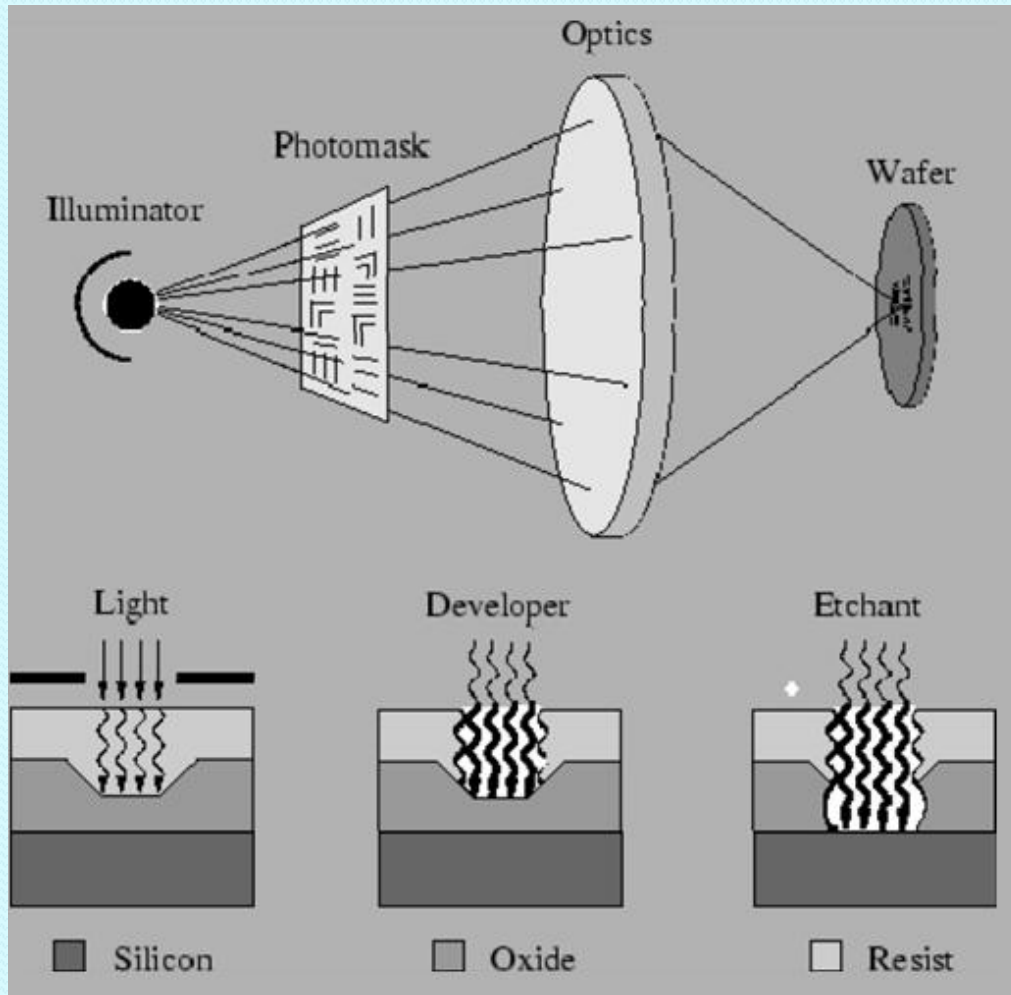
Sistem de citire bazat pe microscopia 4Pi



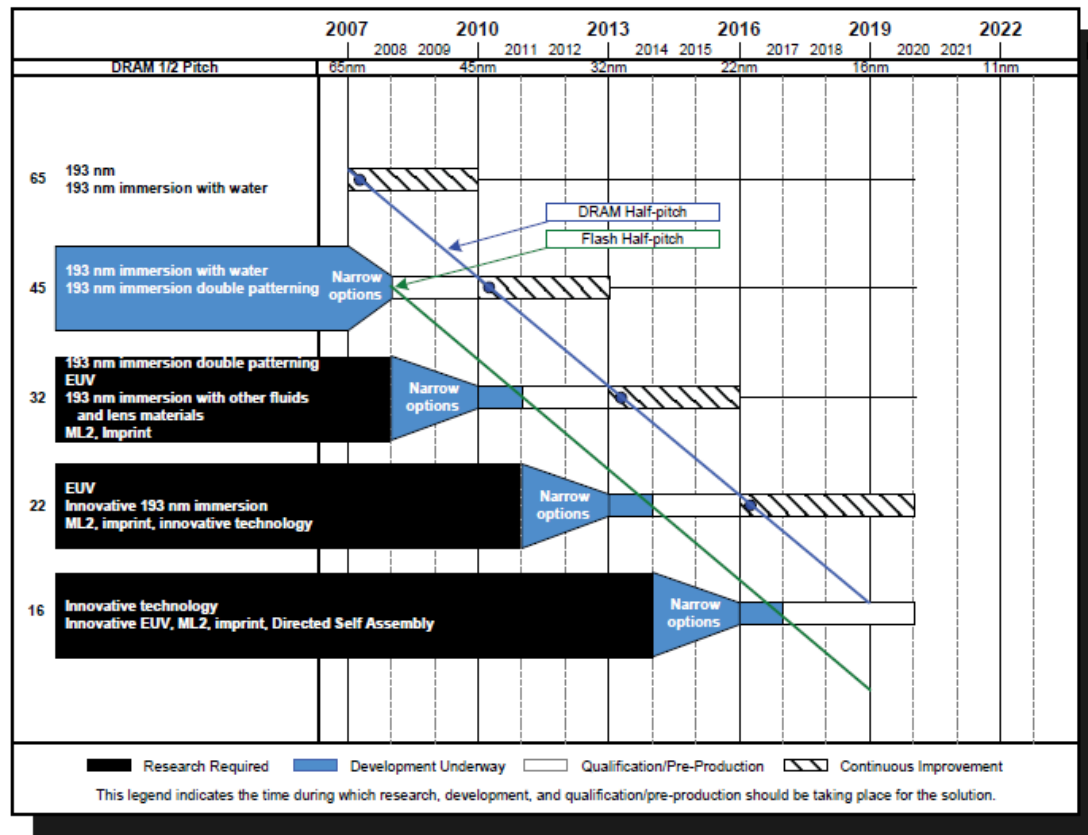
Semnal detectat prin microscopia 4Pi



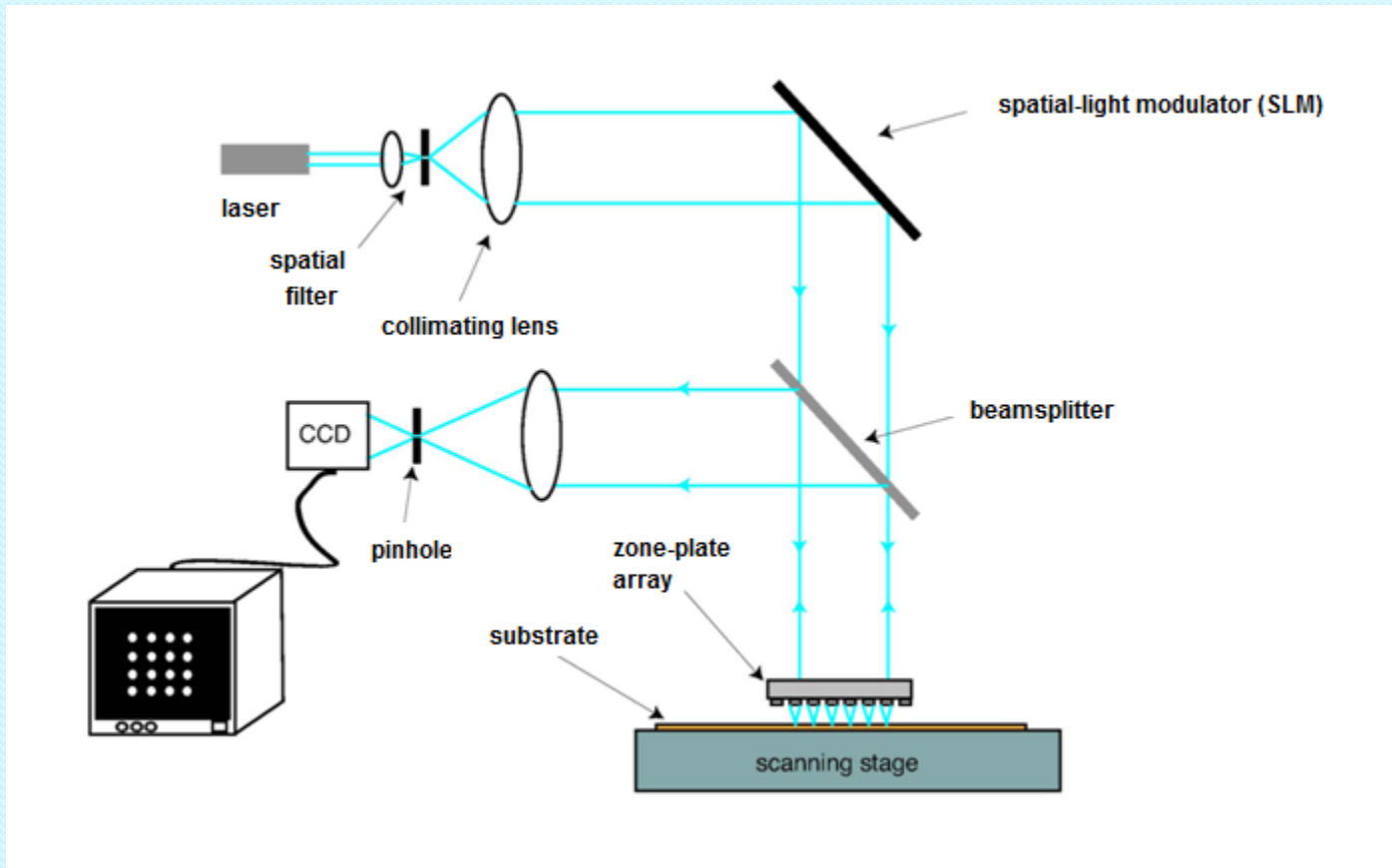
Principiul litografiei optice



Nanolitografia optica - prognoze



Echipament pentru scrierea paralela in domeniul nanolitografiei optice



Nanolitografia Imprint

