

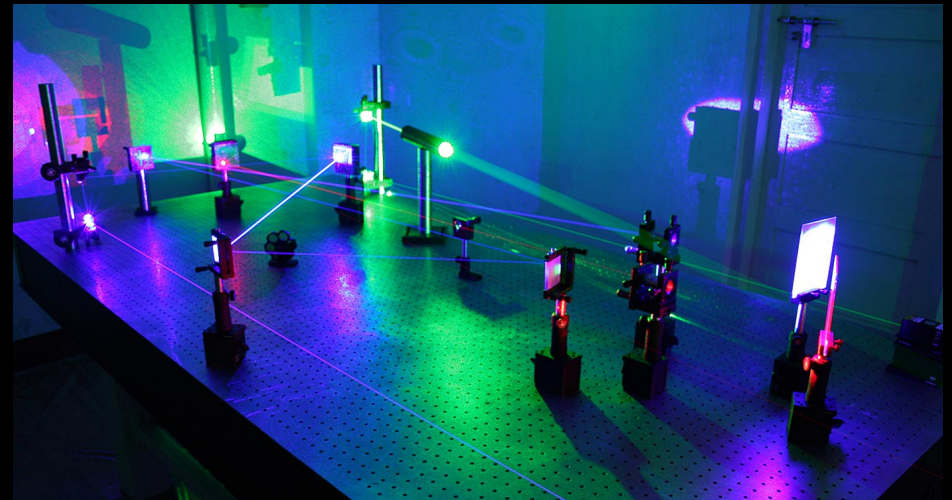


HOLOGRAFIA E ONDAS DE LUZ

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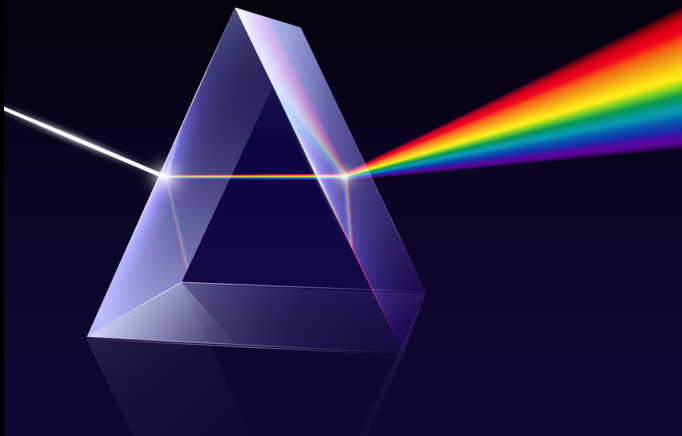
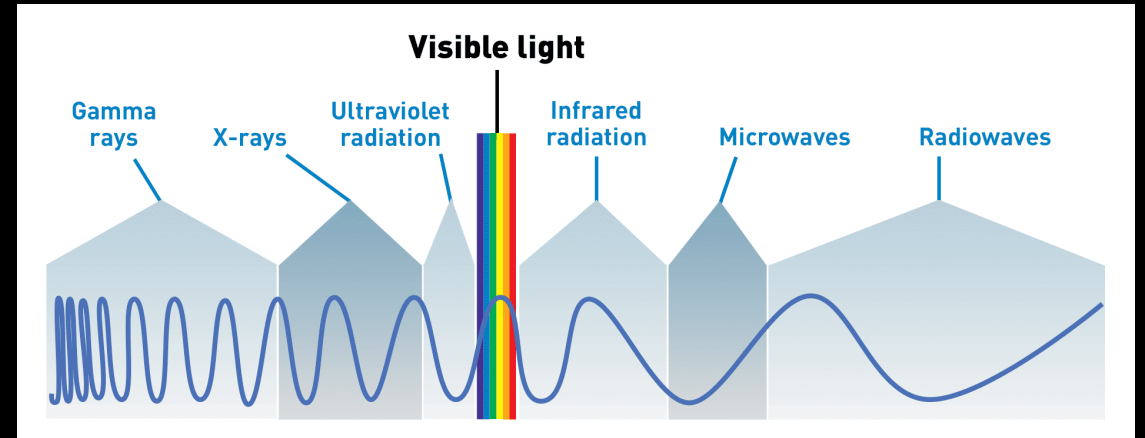
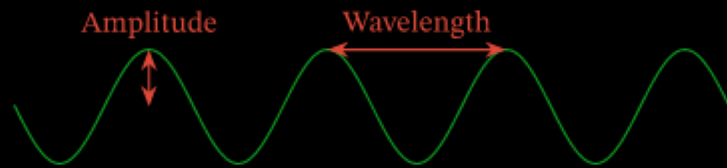
O QUE É UM HOLOGRAMA?

- Imagem tridimensional obtida a partir da projeção de luz sobre figuras bidimensionais. Essas "fotografias em três dimensões" são formadas através do processo da holografia, que funciona devido a propriedade ondulatória da luz.
- Propriedades: 3D, redundância

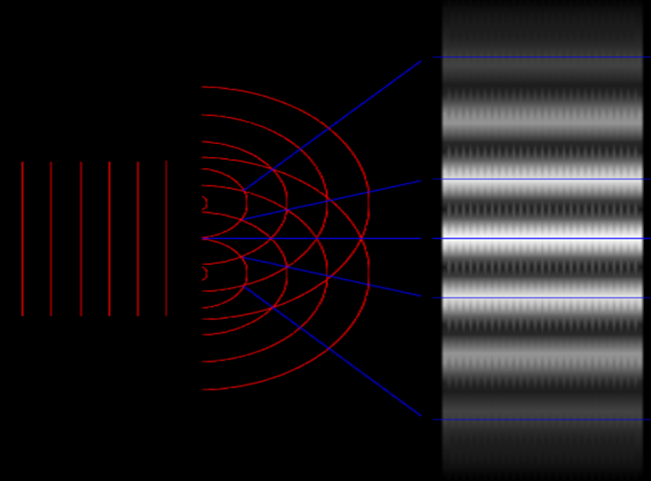
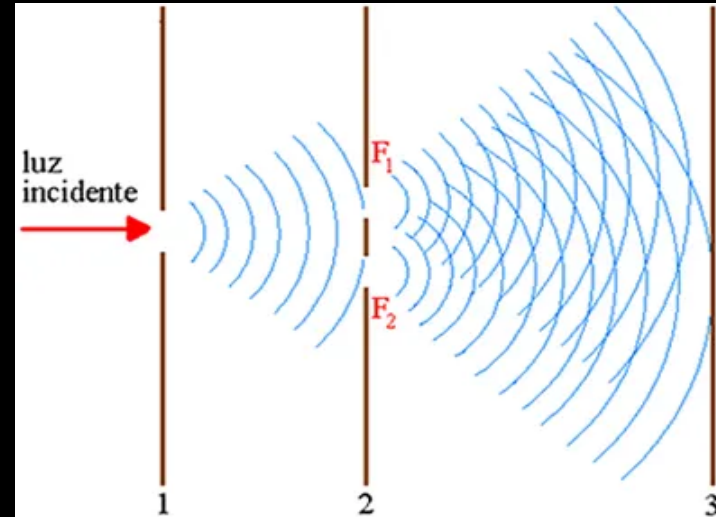
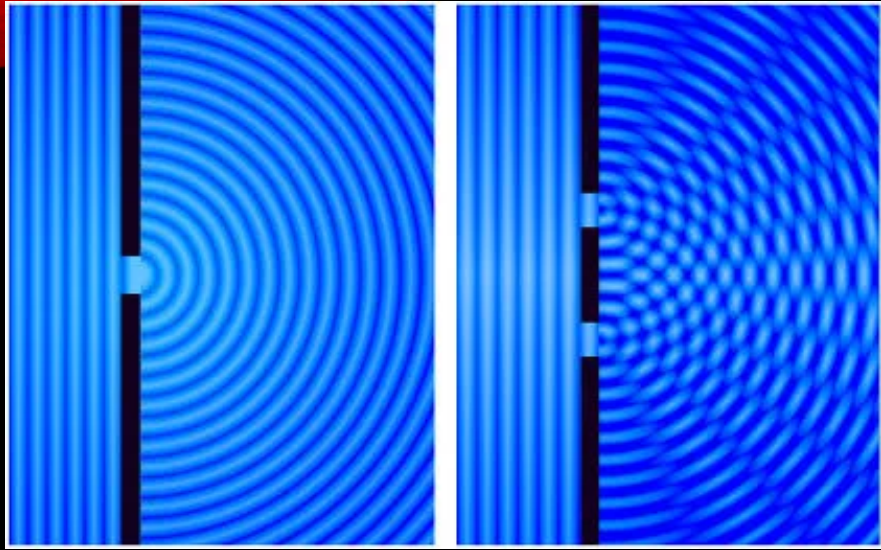


O QUE É A LUZ?

- Luz – onda eletromagnética
- Existem diferentes frequências e comprimentos de onda

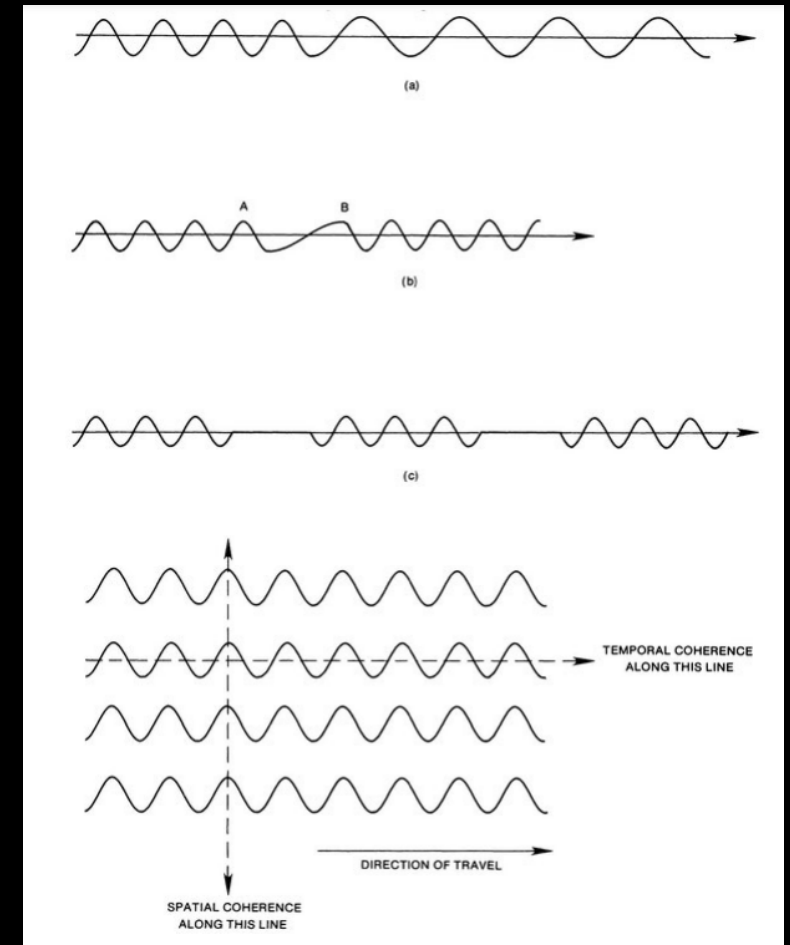
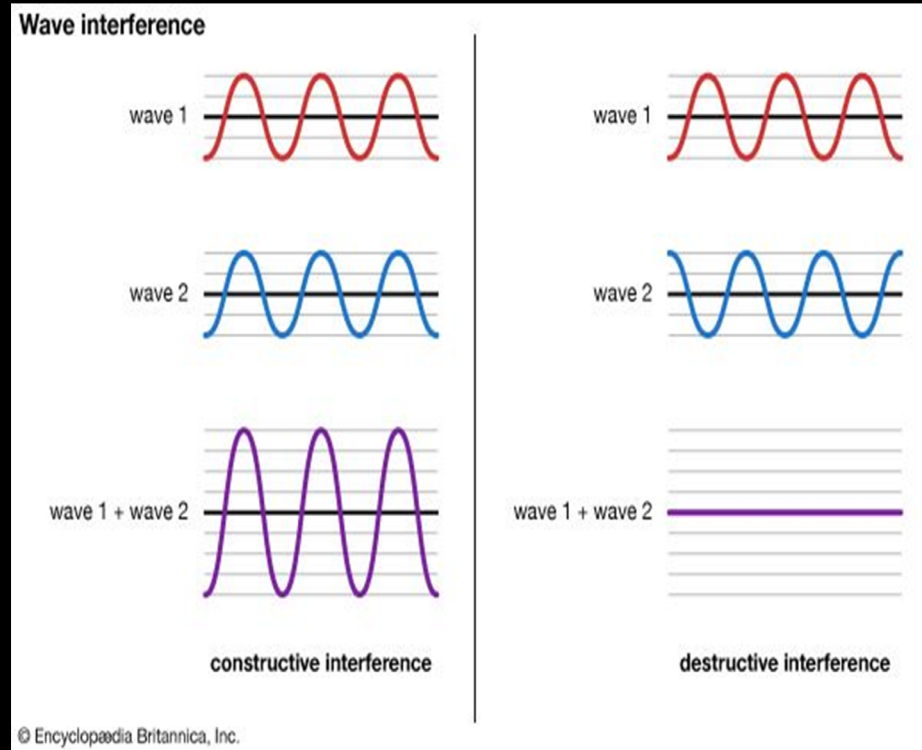


COMPORTAMENTO ONDULATÓRIO E DIFRAÇÃO DA LUZ



PORQUE USAMOS LASERS NA HOLOGRAFIA?

- Quebra de periodicidade = incoerente



COMO FUNCIONA UM HOLOGRAMA

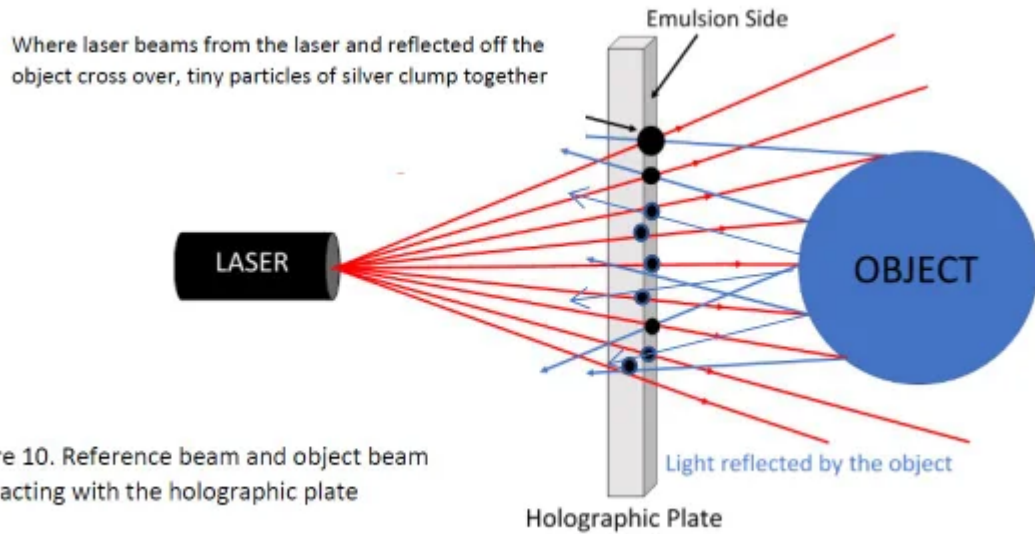


Figure 10. Reference beam and object beam interacting with the holographic plate

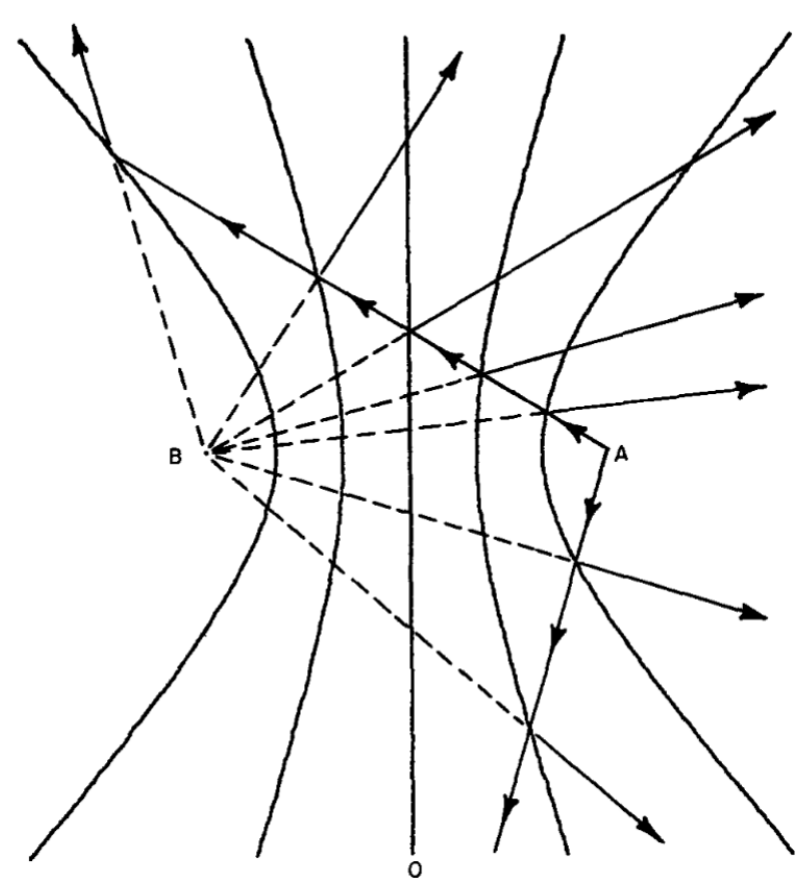
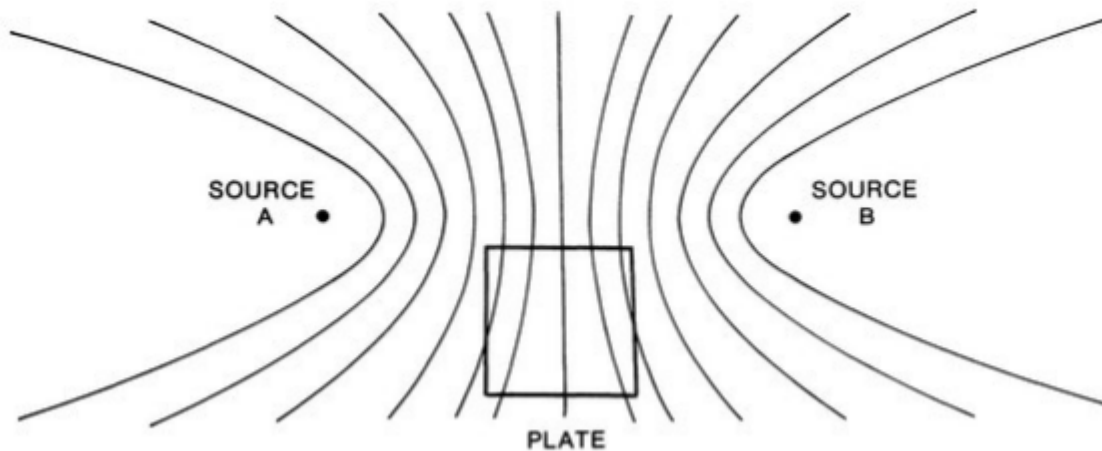
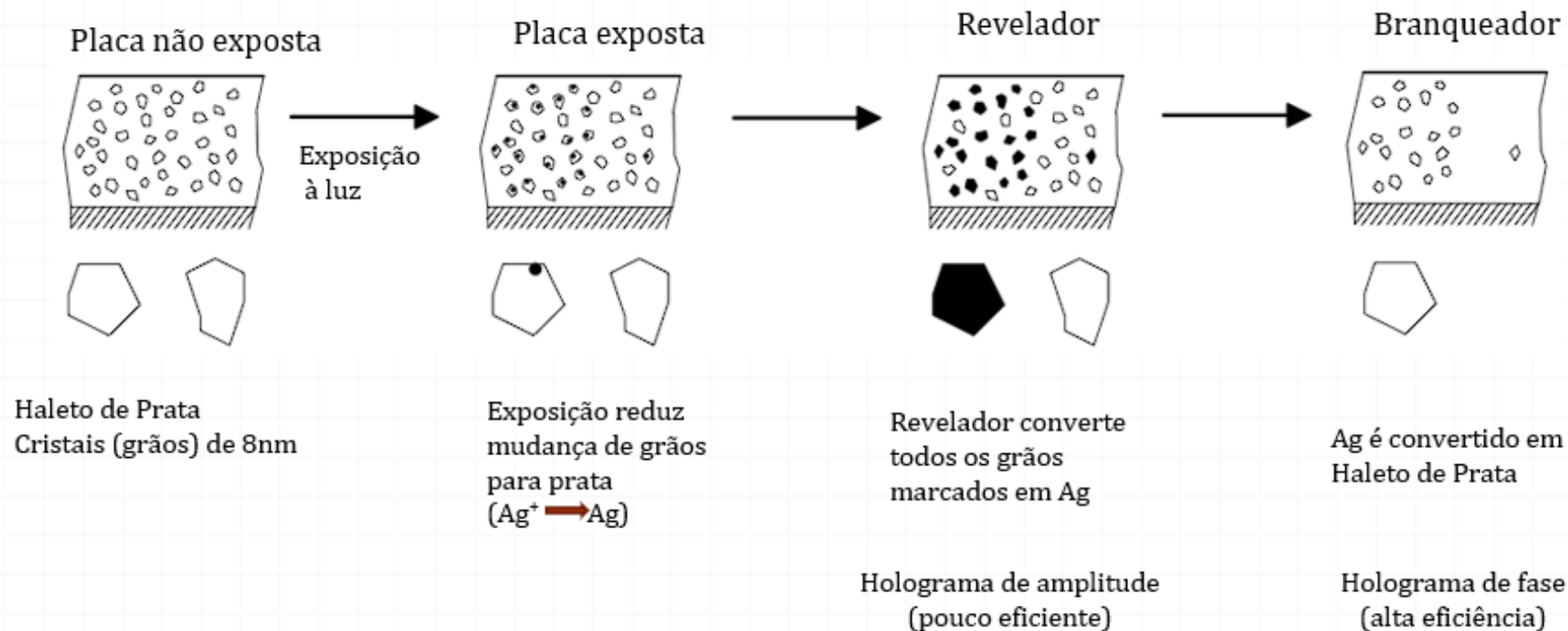


Fig. 3. Any ray from source *A* is reflected by any hyperbolic mirror in such a direction as if the ray were originated from source *B*.



Processo de revelação

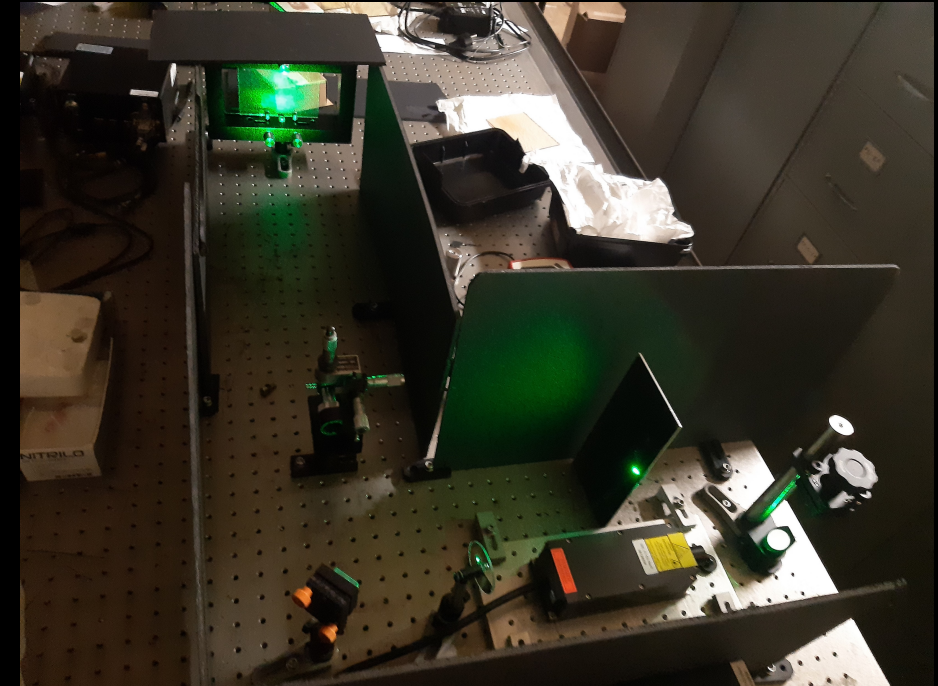


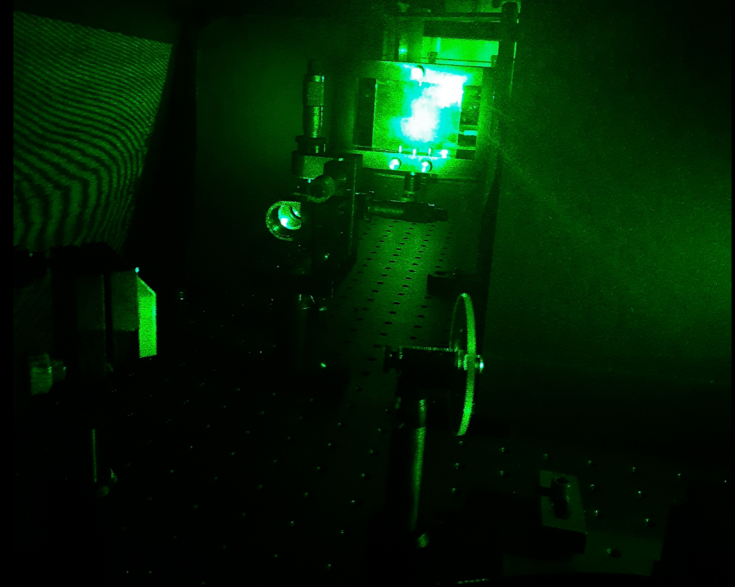
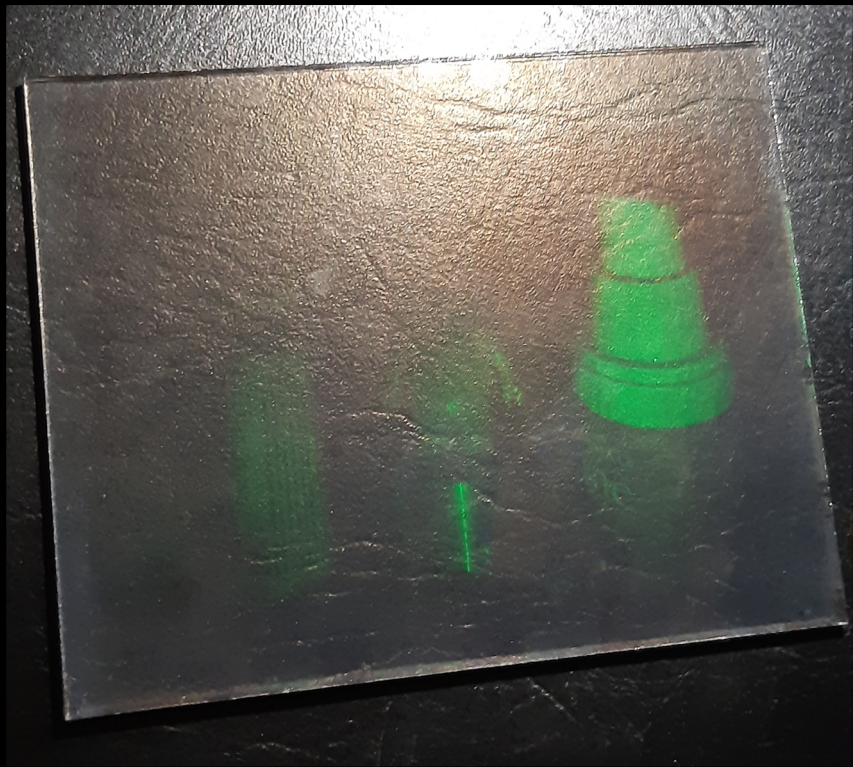
APLICAÇÕES NO DIA A DIA

- Holografia em:
 - ❖ Medicina (órgãos 3D)
 - ❖ Arte
 - ❖ Indústria e comércio (notas e cartões de crédito)
 - ❖ Eletrônica
 - ❖ Indústria de materiais
 - ❖ Design de motores



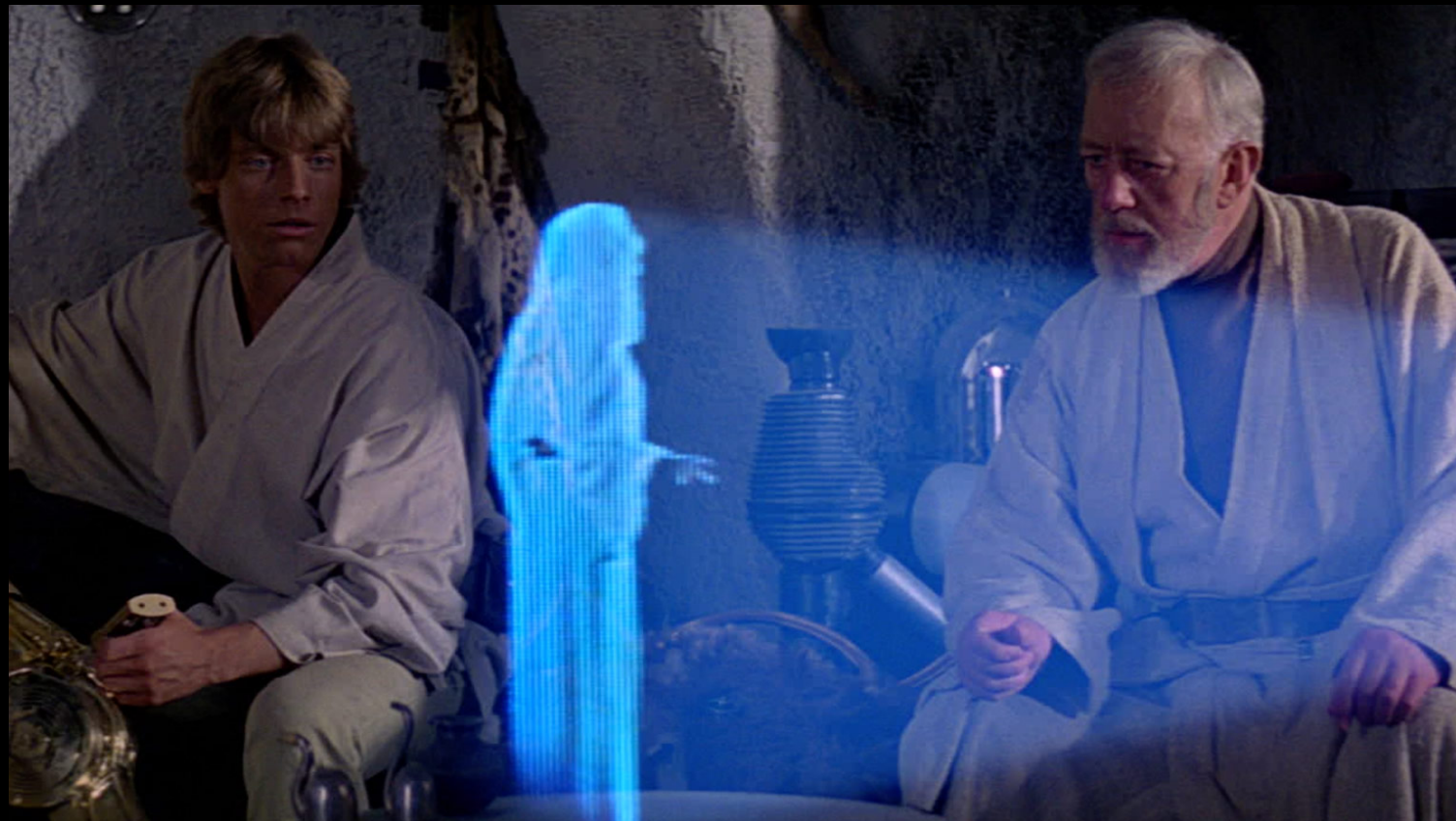
O NOSSO PROJETO





FIM!

OBRIGADO



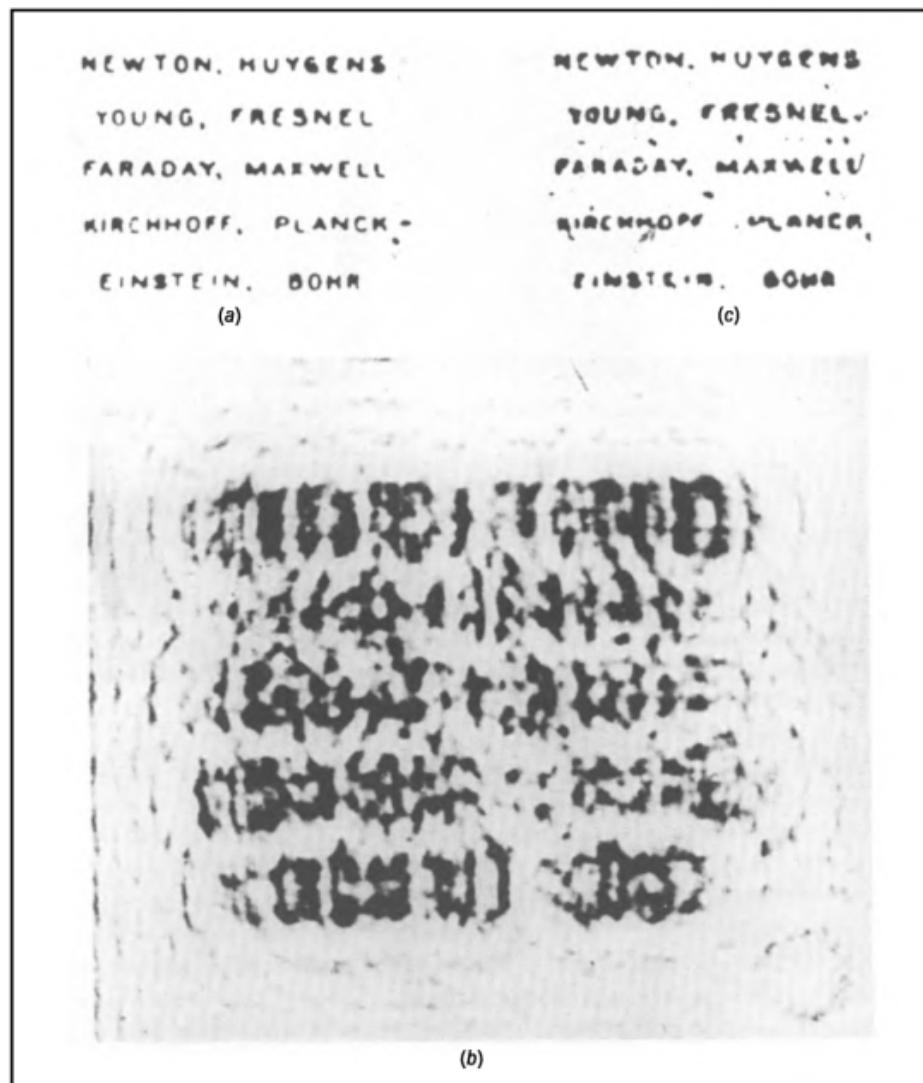


Figure 2.3 One of Gabor's first holograms: (a) shows the original object, a tiny transparency; (b) shows the hologram, much magnified; (c) shows the reconstructed image. Photographs courtesy of National Physical Laboratory.