

DLP Projection

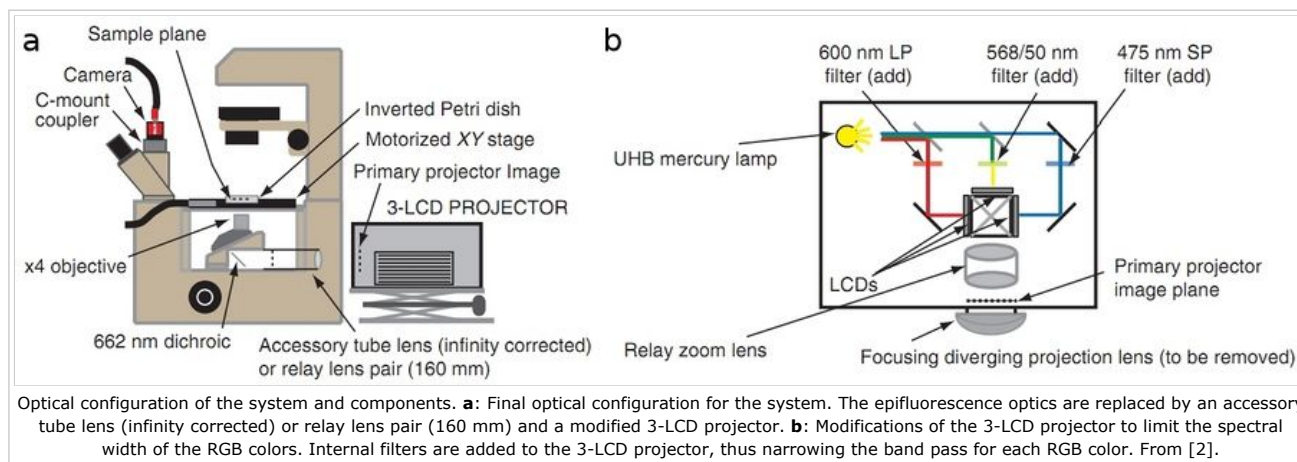
Category: Scanning and Light Patterning

Background/Introduction

DLP projection (DLP: digital light processing (http://en.wikipedia.org/wiki/Digital_Light_Processing)), or in more simple words videoprojection (http://en.wikipedia.org/wiki/Video_projector), is based on an interesting set of techniques which can be used for light patterning in optogenetics. Briefly, the general idea is that commercially available videoprojectors can be relatively easily adapted to your optogenetic setup if you are a DIY (do it yourself) aficionado. Amongst existing projection technologies, LCD (liquid crystal display (<http://en.wikipedia.org/wiki/LCD>)) and DLP projectors[1] have been tested so far for optogenetic stimulation and/or inhibition of neuronal activity in isolated preparations (acute brain slices or nematodes in a petri dish). These techniques have been described in methods papers (LCD projector: [2], DLP projector: [3]).

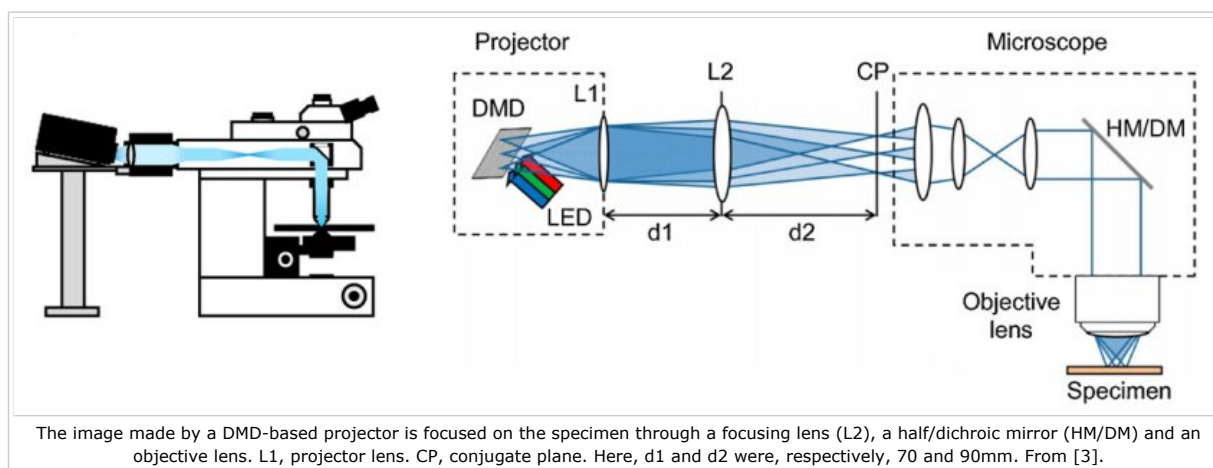
Modifying an LCD projector for multiwavelength patterned illumination

This strategy has been described in [2].



Modifying a DMD-based projector for multiwavelength patterned illumination

This strategy has been described in [3].



References

- ▶ White Paper: "Patterned Illumination Systems for Optogenetics" (<https://www.mightexbio.com/resources/white-paper/patterned-illumination-neuroscience-whitepaper/>).
- ▶ White Paper: "All-Optical Imaging & Stimulation Tools for In Vivo Neuroscience" (<https://www.mightexbio.com/resources/white-paper/imaging-and-stimulation-neuroscience-whitepaper/>) has provided an overview of the existing all-optical imaging and stimulation tools, and compared the advantages and disadvantages of these techniques.

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1. Here DLP is used to designate DMD-based projectors. DMD stands for digital micromirror device (http://en.wikipedia.org/wiki/Digital_Micromirror_Device). A DLP projector can be equipped with one to three DMDs.
2. Error fetching PMID 22240583:
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