

MAXWELL'S SPOT MEASUREMENTS IN CHANGING WHITE LIGHT SPECTRA

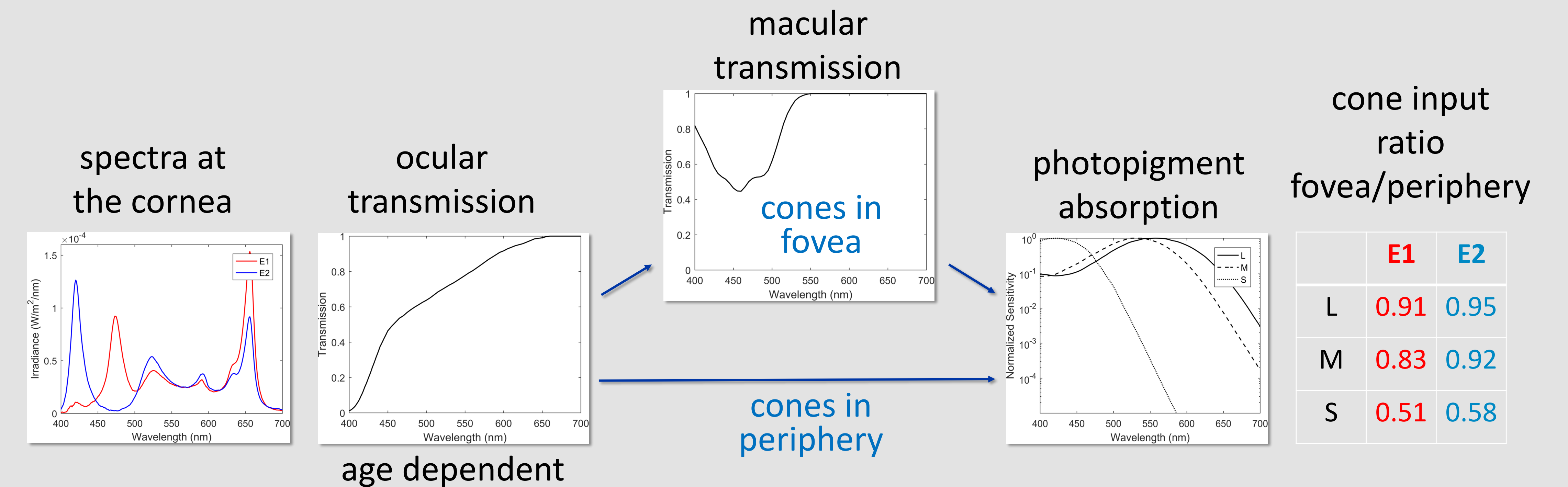


Marcel Lucassen, Tobias Borra, Jan Souman, Luc Schlangen, Philips Lighting Research, Eindhoven, The NETHERLANDS

Introduction

- Foveal cones receive less (short-wave) light than peripheral cones due to absorption by macular pigment.
- Normally this goes unnoticed, possibly because of local chromatic adaptation and/or neural filling-in.
- Maxwell's spot is perceived when alternately looking at a blue and a yellow light field. The spot is attributed to the presence of macular pigment.
- Here we show that Maxwell's spot also appears when two white lights are alternated.

From spectra to cone inputs

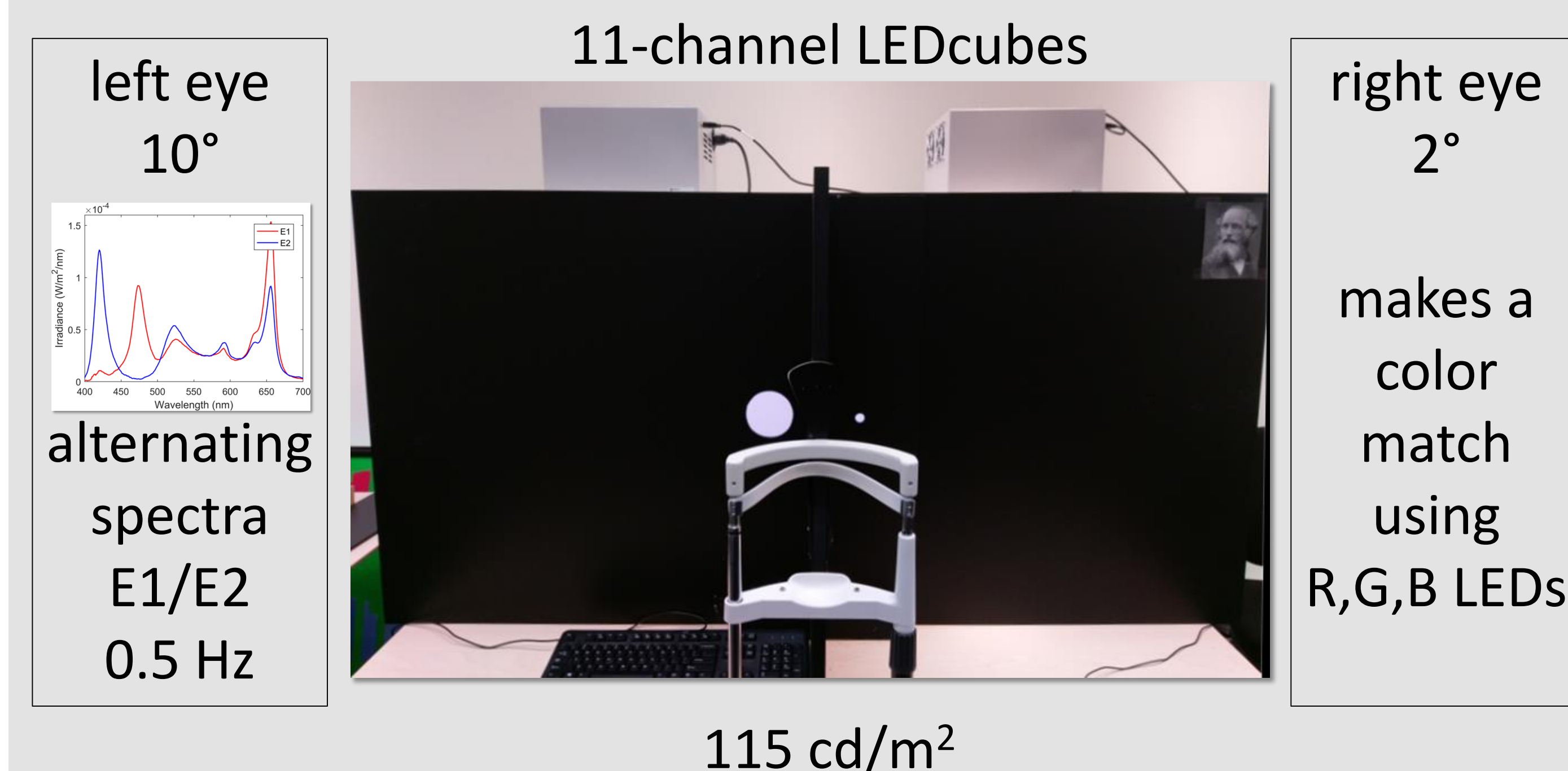


We matched the appearance of two Maxwell spots, induced by alternating white lights of different spectral composition

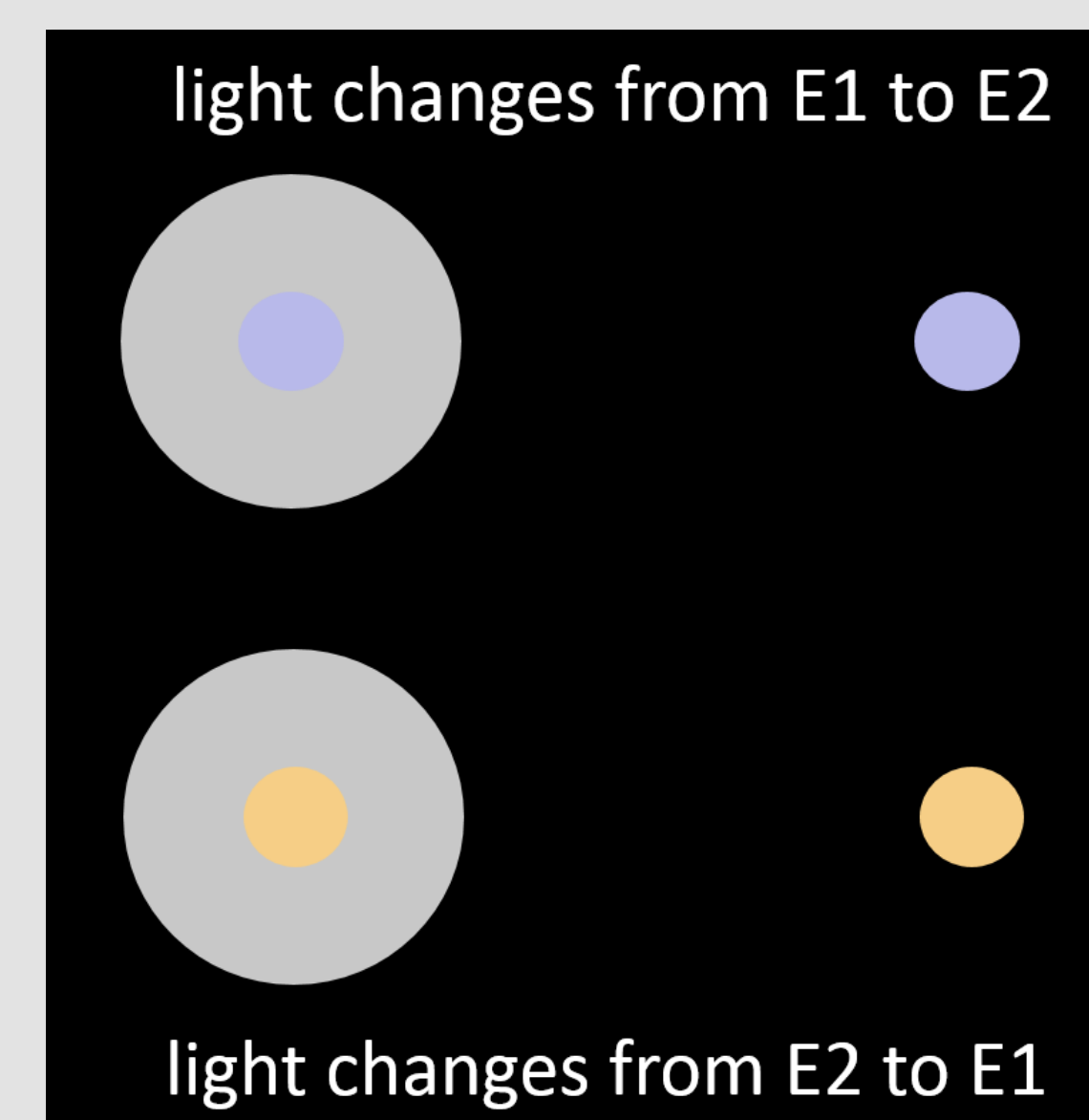
Main findings

- M's spot can be induced by alternating white lights with different spectral composition
- Sensitivity adjustments of foveal cones alone cannot explain the color of Maxwell's spot
- Additional interaction between peripheral and foveal cones needed to describe our data

Successive haploscopic color matching



Maxwell spot appearances



mean observer data (n=5)

