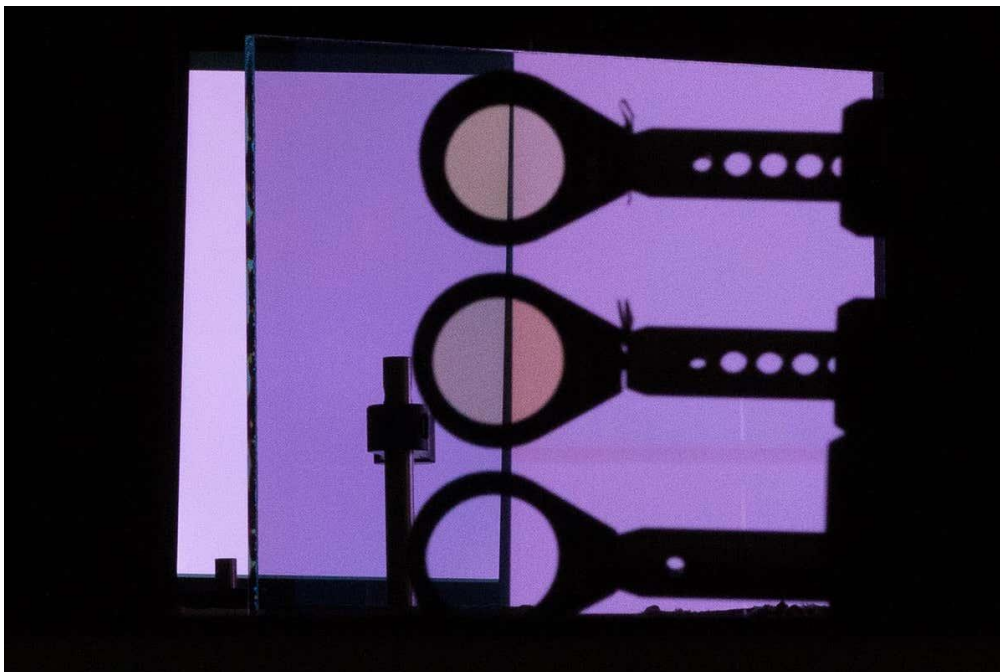




Afterworking

for young engineers, architects & scientists



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Michel Frising

Colors are not what they appear to be

Design and implementation of an apparatus for the characterization of color vision enhancement devices

Forum Da Vinci | 6, bd Grande Duchesse Charlotte, Luxembourg | September 27 | 6 pm
Please sign up at info@davinciasbl.lu

Michel Frising

Education

- Since 2018: PhD in Physics at the Universidad Autónoma de Madrid, Madrid (Spain)
- 2018: MSc ETH Zurich in Micro and Nanosystems (Master's thesis at the University of Wisconsin-Madison)
- 2016: BSc ETH Zurich in Mechanical Engineering



Color vision is the ability to distinguish colors based on the spectral composition of the light reflected or emitted from an object. Many species in the animal kingdom have evolved this capability, but for many animals, including us humans, color vision turned out very differently depending on the environment in which each species evolved. In typical humans, color vision is mediated by three photosensitive receptors of finite bandwidth and placed at different peak wavelengths. This has important consequences for the number of spectra and wavelengths that can be distinguished. Interestingly, some birds and fish have evolved additional receptors to detect light in the UV. The Mantis shrimp, a colorful beast inhabiting the seas can distinguish up to 16 different wavelength bands. In light of these facts one wonders how the world looks like for these creatures.

In my talk I will briefly present the biological basis of color vision to fully appreciate the differences between different color vision systems. The rest of my presentation, I will focus on the device developed for my Master's thesis at the University of Wisconsin-Madison in the lab of Dr. Mikhail Kats. The device consists of a pair of filters which can potentially increase the color vision capabilities of humans. Also, I will show how such a device would be characterized which will allow to compare different systems. At the end of my talk I hope the audience will have a better understanding of what color really is and how colors can appear very different to our fellow humans and to other animals.