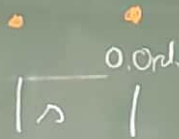


Laserpointer

Gitter

$$d = \frac{1}{570}$$

Wand



rot: $\lambda = 556 \text{ nm}$
grün: $\lambda = 432 \text{ nm}$
blau: $\lambda = 326 \text{ nm}$

$$l = 1373 \text{ mm}$$
$$d = \frac{1}{570} \text{ mm}$$

Messung der Wellenlängen
des Laserpointer

$$\alpha = \tan^{-1} \frac{\lambda}{l}$$

$$\lambda = d \cdot \sin \alpha$$

Monochromatisches Licht einer Natriumdampflampe (Hochdrucklampe)

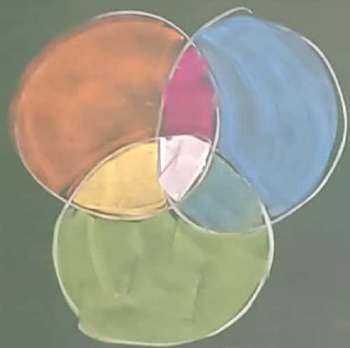
Starten: Farben da (etwas blau)

Erwärmung: keine Farben, alles grau in grau

warmer Lampe: Farben, gelb-orange-Stich

Schwarzlicht: Papier, helle Wäsche, Zähne hell, Rest war dunkel

additive Farbmischung



rot + grün = gelb

rot + blau = magenta

grün + blau = cyan

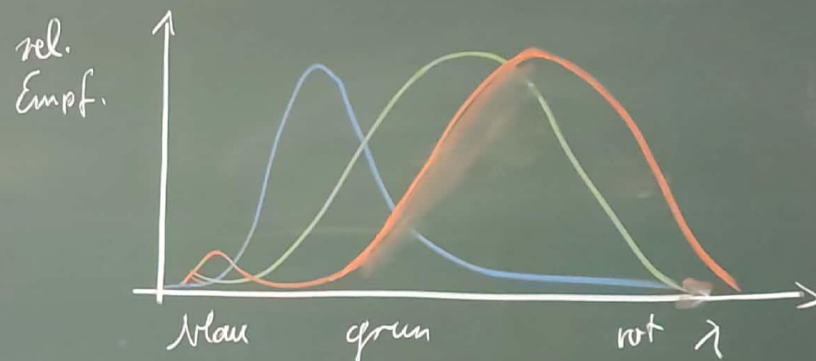
subtraktive Farbmischung



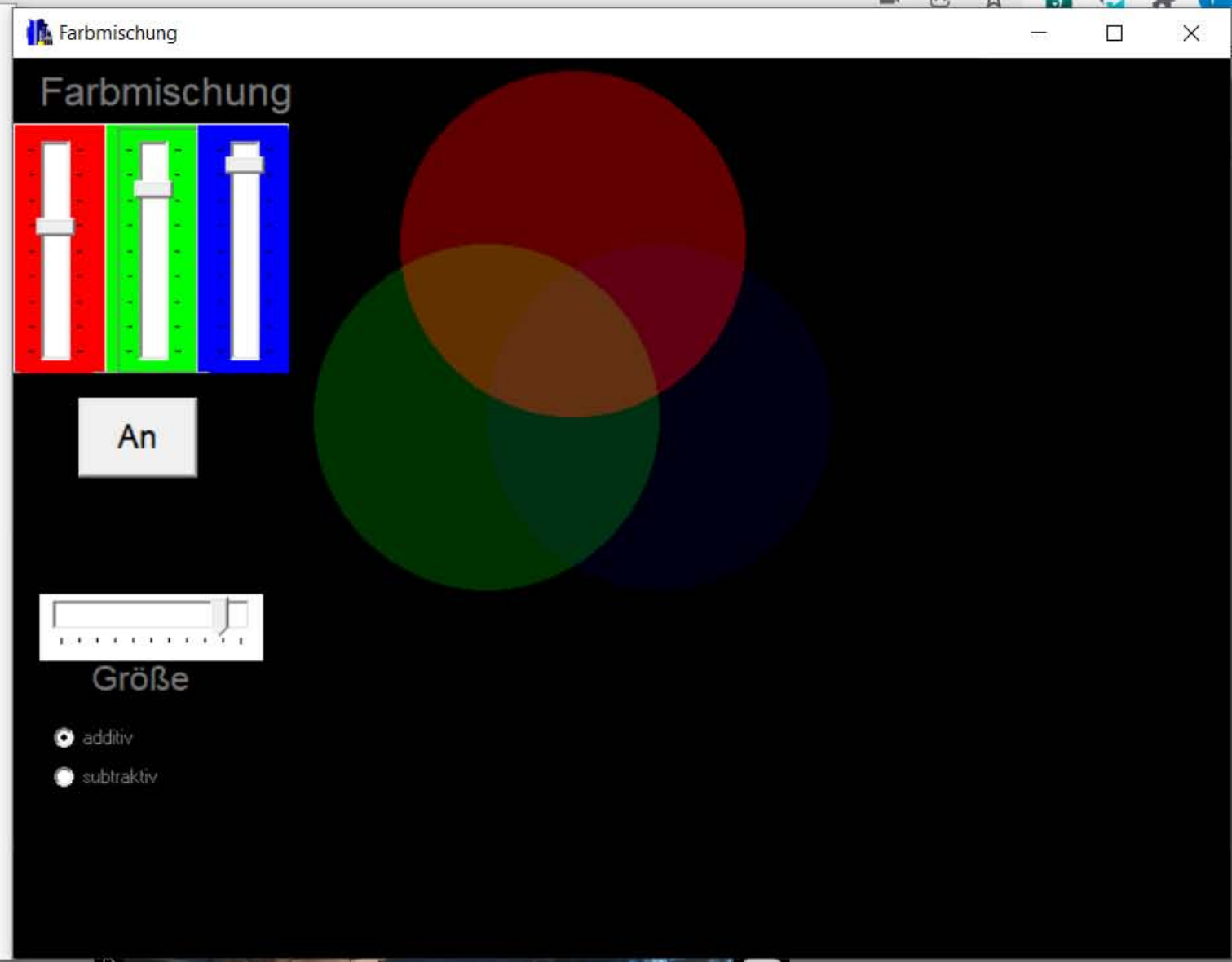
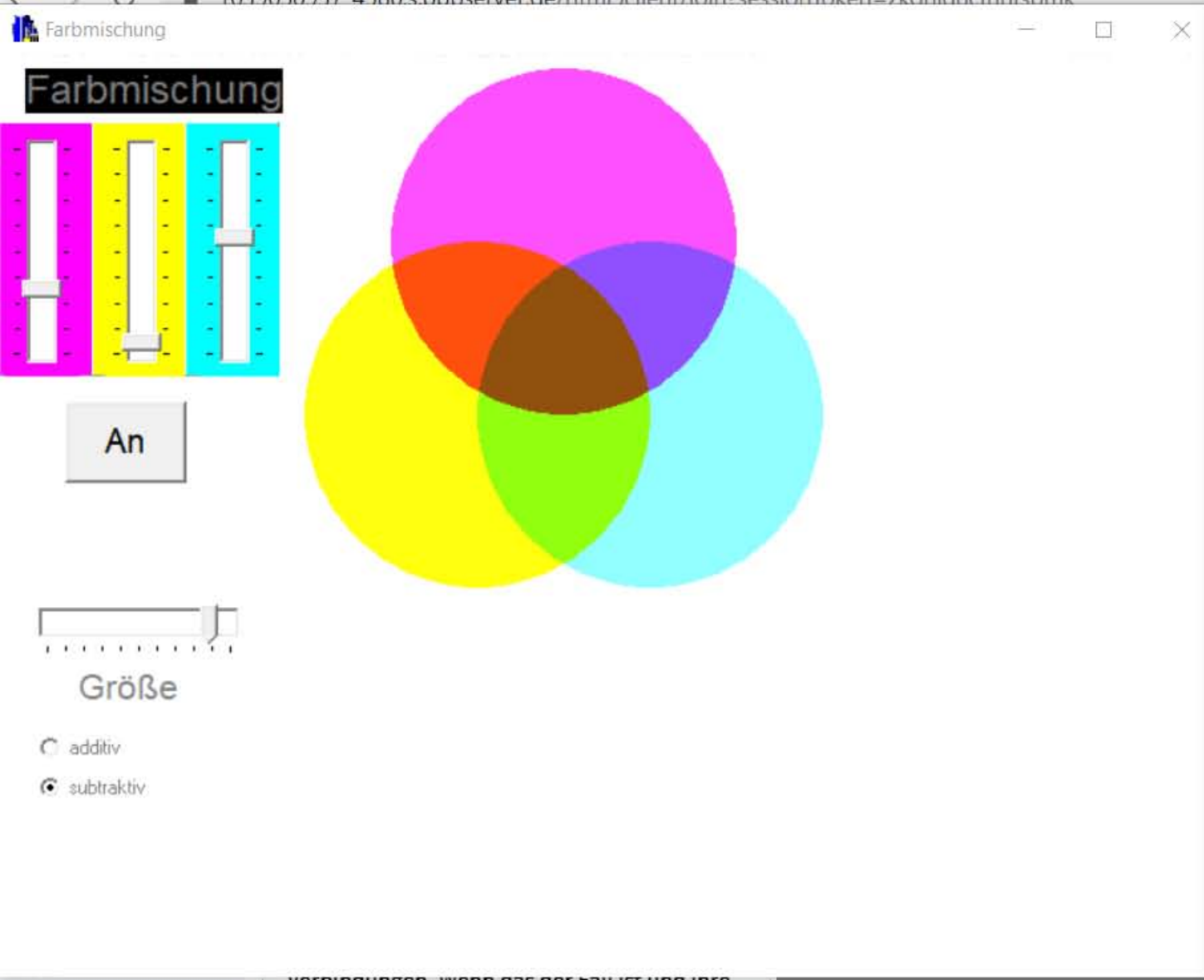
magenta $\cap$ cyan = blau

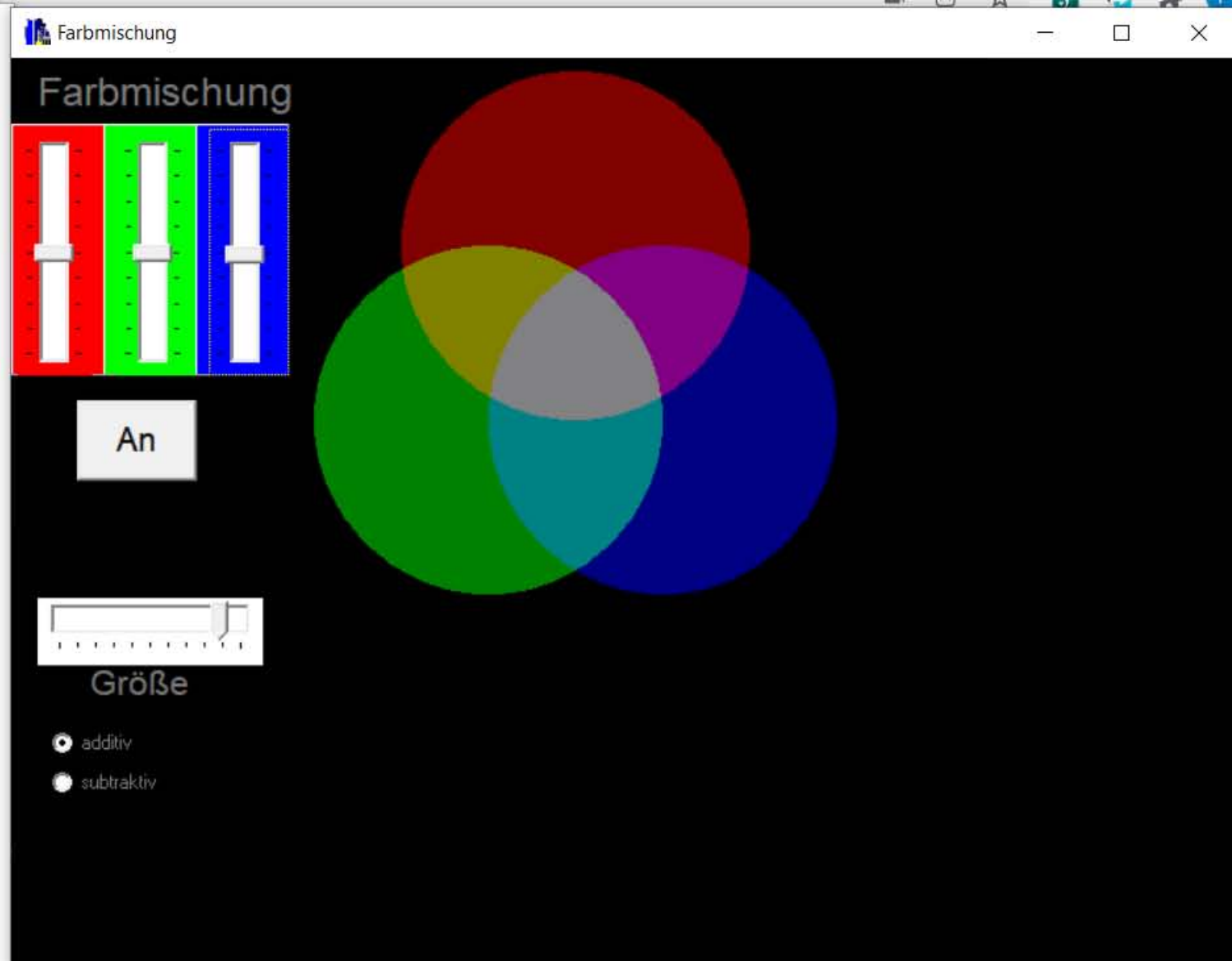
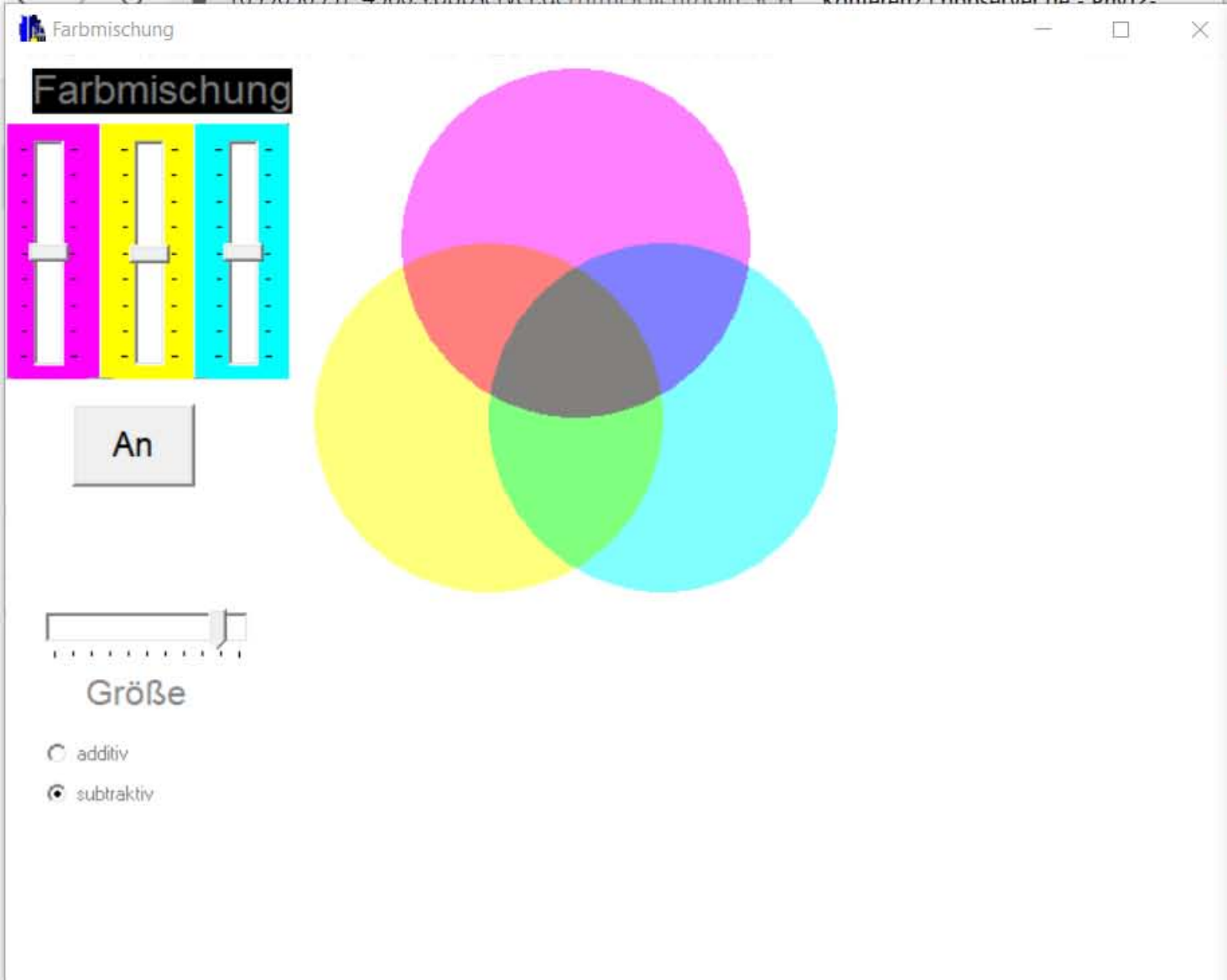
magenta $\cap$ gelb = rot

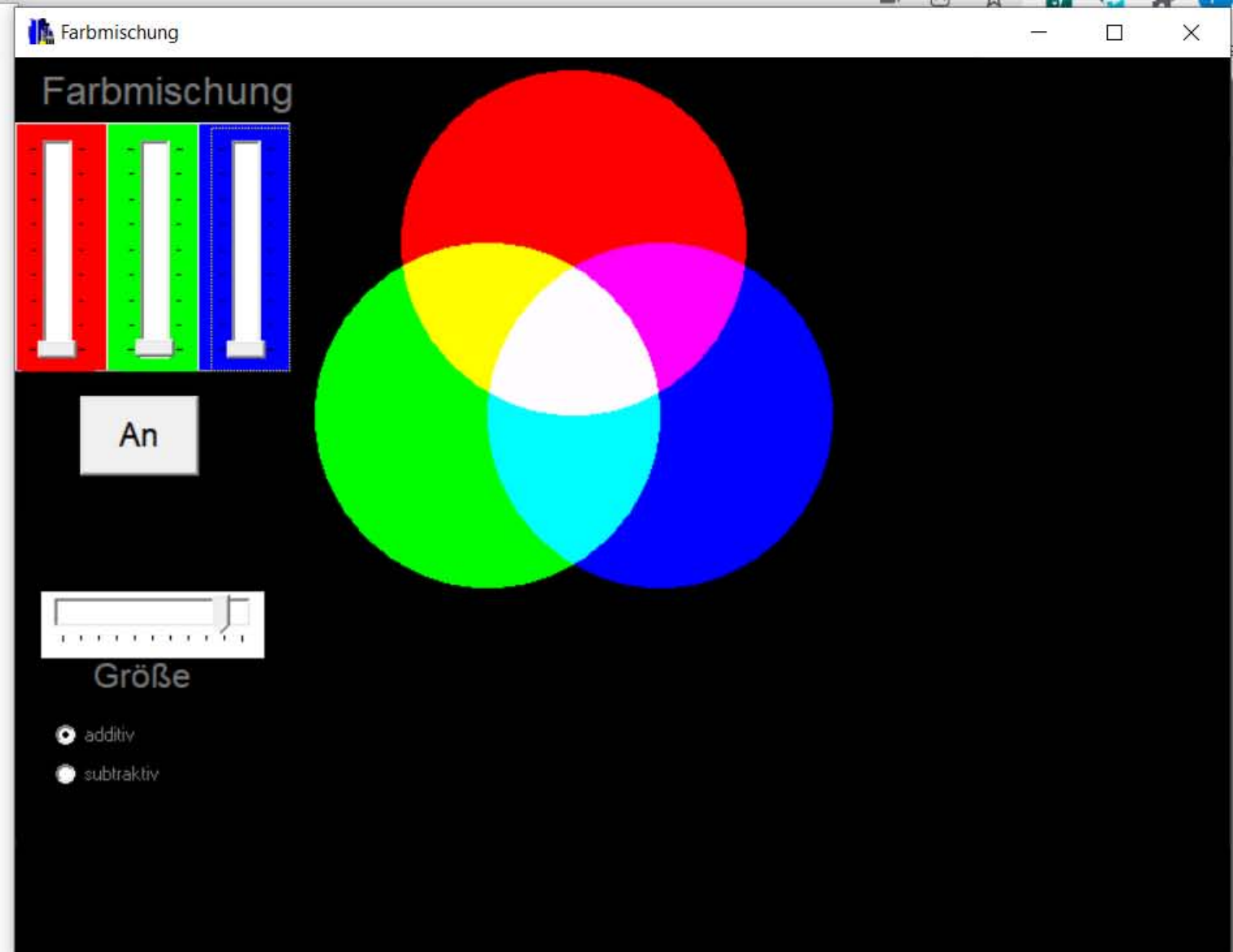
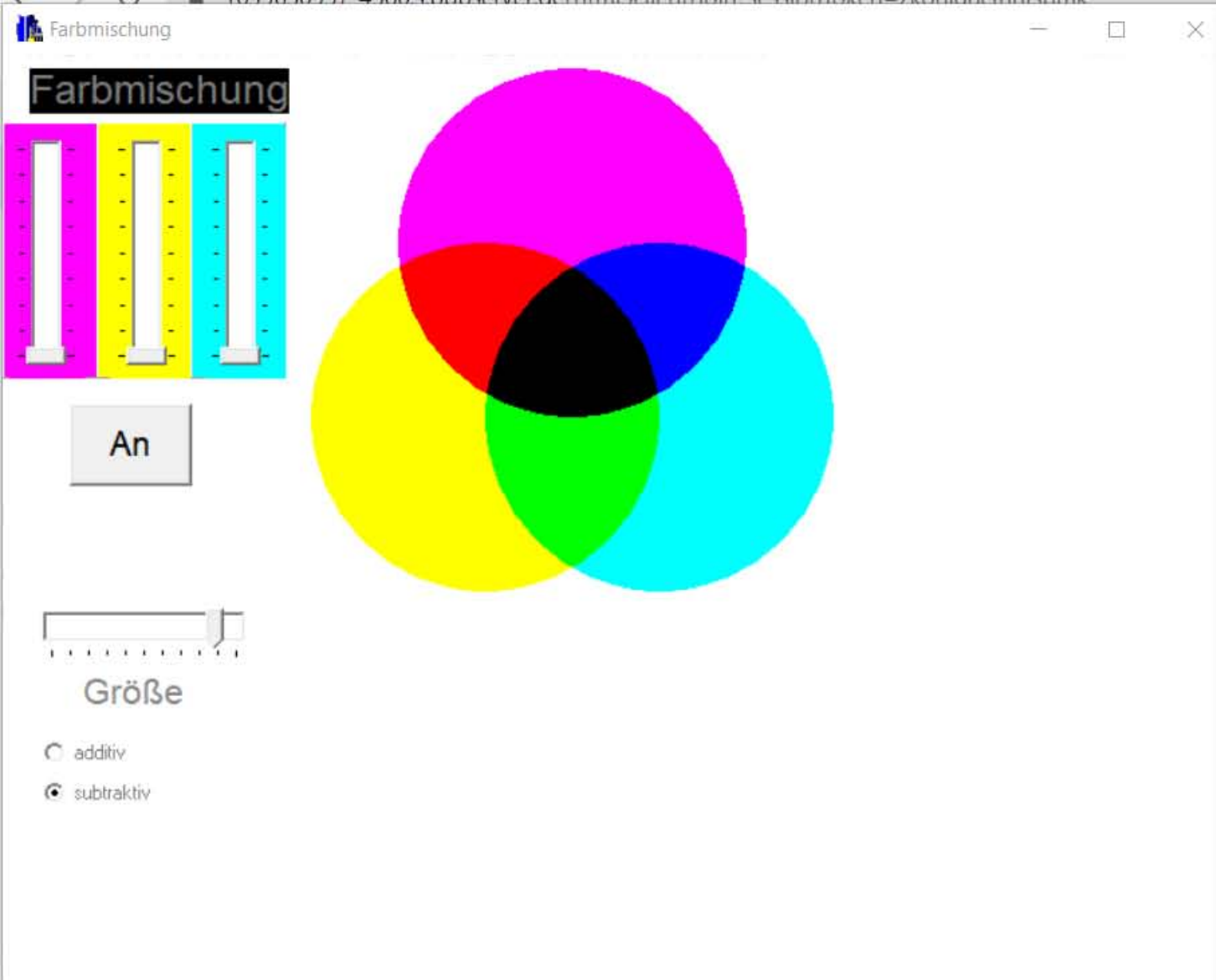
cyan $\cap$ gelb = grün

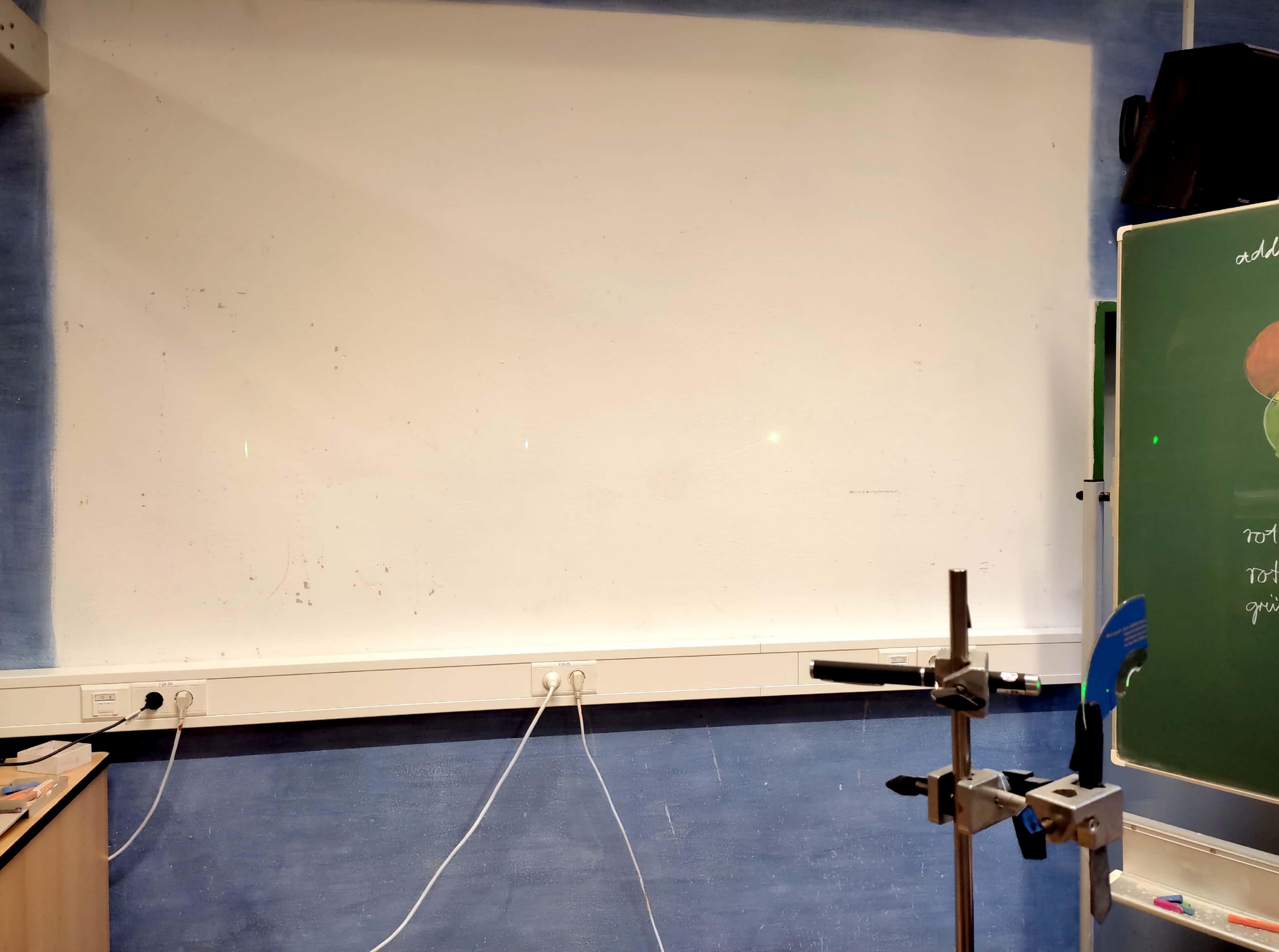


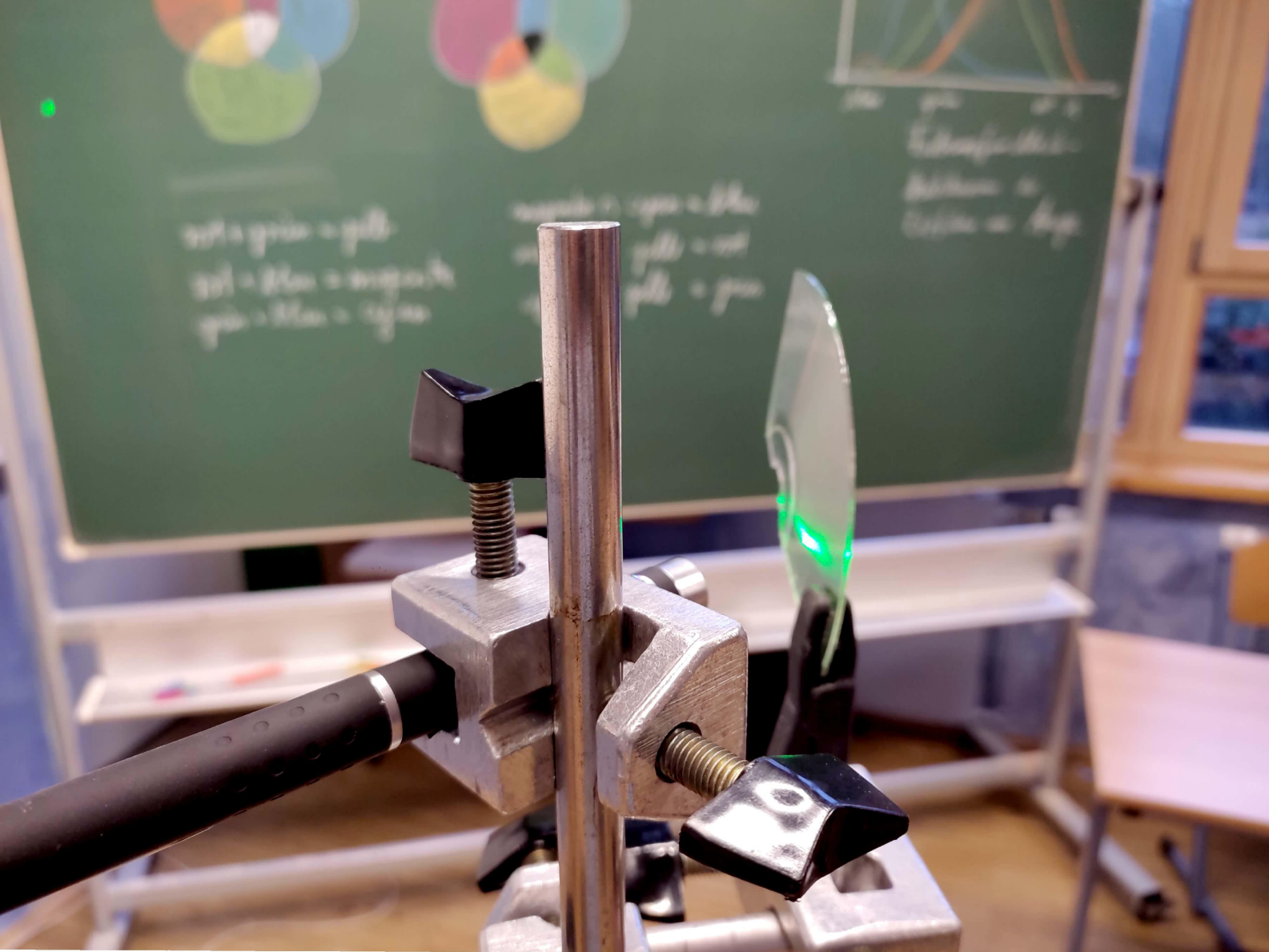
Farbempfindlichkeitskurven der Zäpfchen im Auge.



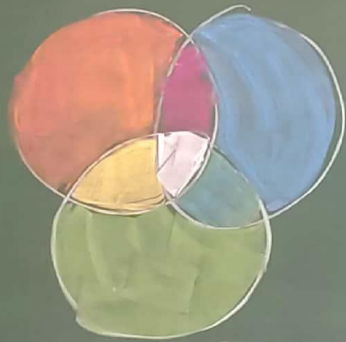








additive Farbmischung



rot + grün = gelb

rot + blau = magenta

grün + blau = cyan

subtraktive Farbmischung



magenta $\cap$ cyan = blau

magenta $\cap$ gelb = rot

cyan $\cap$ gelb = grün



Farbeempfindlichkeitskurven der Zäpfchen im Auge.

Messung der CD-Rillenbreite



Abstand zur 1. Ordnung $\beta = 607 \text{ mm}$
 Wand-CD $\lambda = 527 \text{ nm}$

b) 590
 $\ell = 1770 \text{ nm}$
 b) 1466 nm
 gesucht d

$$\alpha = \tan^{-1}\left(\frac{\beta}{\ell}\right)$$

$$\frac{\lambda}{d} = \sin \alpha \quad | \cdot d$$

$$\lambda = d \cdot \sin \alpha \quad | : \sin \alpha$$

$$d = \frac{\lambda}{\sin \alpha}$$