photobiologyLEDs Version 0.3.2
Catalogue of LEDs

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1 Introduction

We will plot the emission spectra of the different LEDs for which data is provided in the pacakge. We plot the spectra as spectral energy irradiance. All spectra are normalized to an area of one under the whole curve.

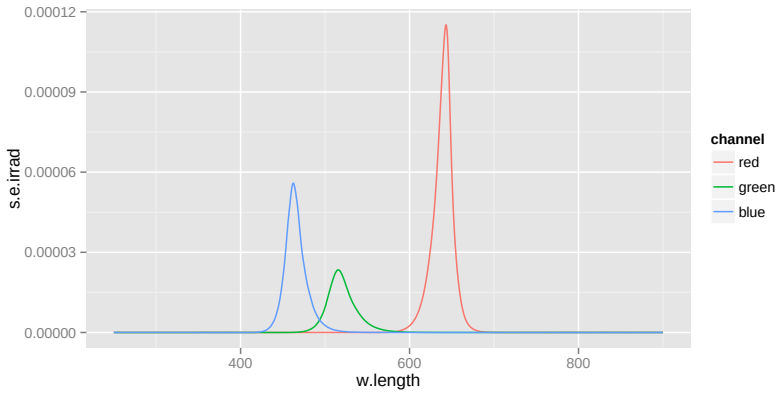
```
library(ggplot2)
library(photobiology)
library(photobiologyLEDs)
library(photobiologygg)
```

```
options(photobiology.plot.annotations = c("boxes", "labels", "colour.guide", "peaks", "title"))
```

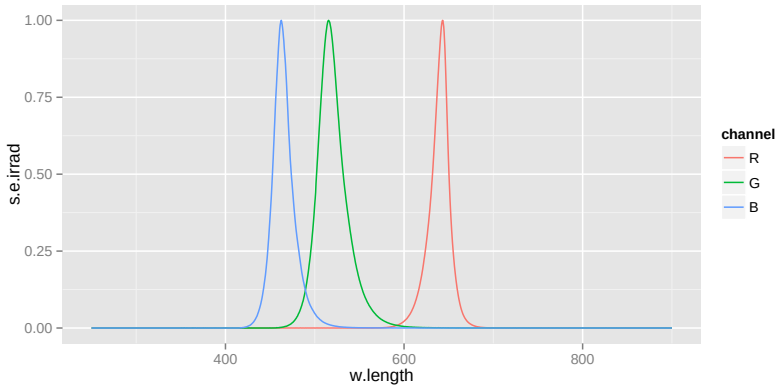
2 Norlux LED arrays

2.1 RGB array

```
Norlux.spct <- rbindspct(Norlux_RGB.mspct, idfactor = "channel")
 ggplot(Norlux.spct, aes(w.length, s.e.irrad, colour = channel)) +
  geom_line()
```

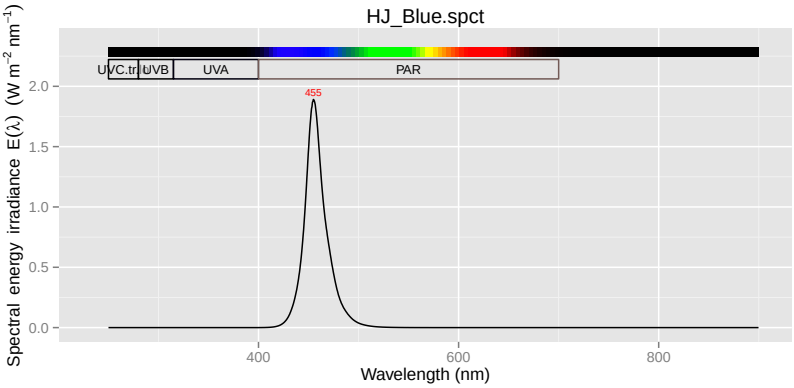



```
Norlux.spct <- rbindspct(list(R = normalize(Norlux_R.spct),
                              G = normalize(Norlux_G.spct),
                              B = normalize(Norlux_B.spct) ),
                         idfactor = "channel")
ggplot(Norlux.spct, aes(w.length, s.e.irrad, colour = channel)) +
  geom_line()
```



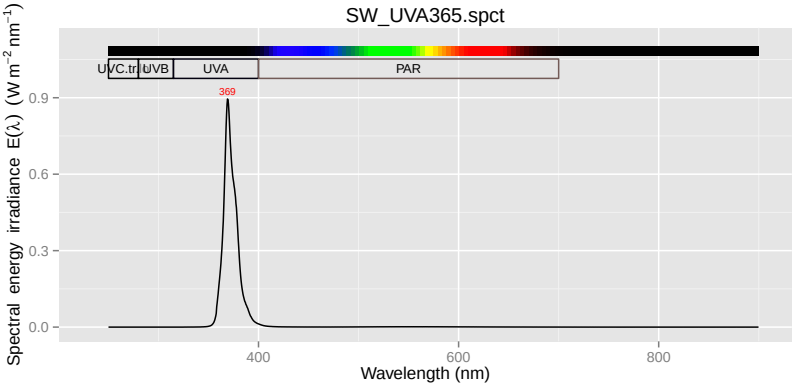
3 Huey-Jann LED arrays

```
plot(HJ_Blue.spct)
```



4 Shenzhen Weili LED arrays

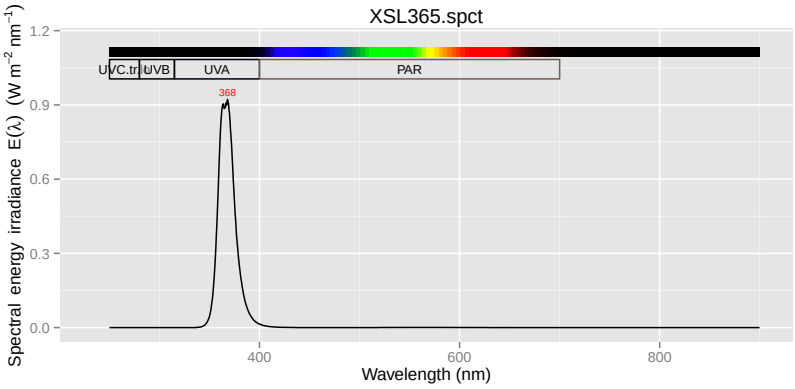
```
plot(SW_UVA365.spct)
```

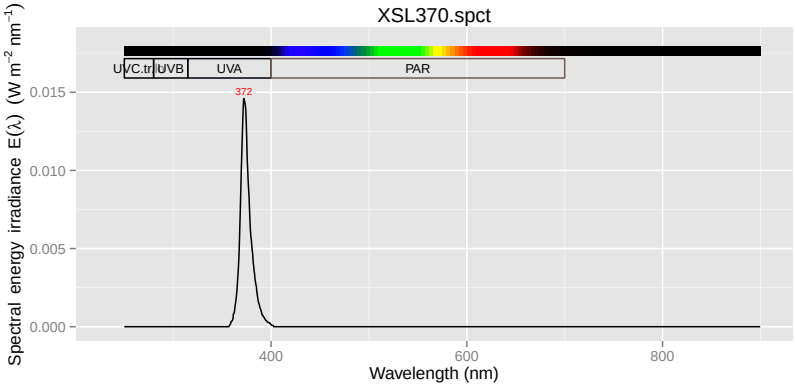


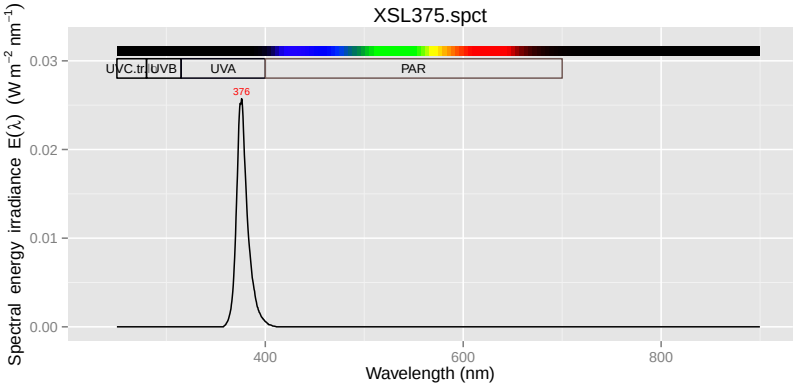
5 Roithner Laser LEDs and LED arrays

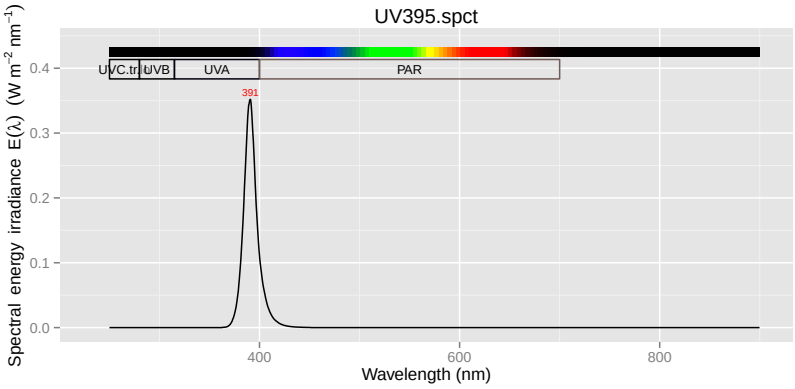
5.1 UV-A

```
plot(XSL365.spct)
plot(XSL370.spct)
plot(XSL375.spct)
plot(UV395.spct)
```

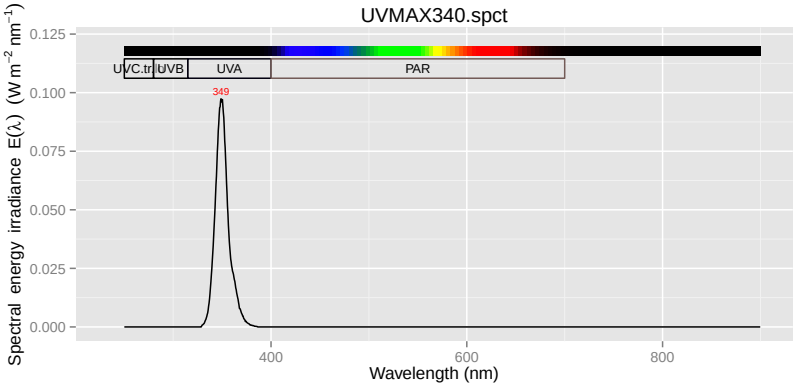

XSL365.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
1.2
0.9
0.6
0.3
0.0
UVC.tr
UVB
UVA
PAR
368
400
600
800
Wavelength (nm)


XSL370.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
0.015
0.010
0.005
0.000
UVC.tr
UVB
UVA
PAR
372
400
600
800
Wavelength (nm)


XSL375.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
0.03
0.02
0.01
0.00
UVC.tr
UVB
UVA
PAR
376
400
600
800
Wavelength (nm)

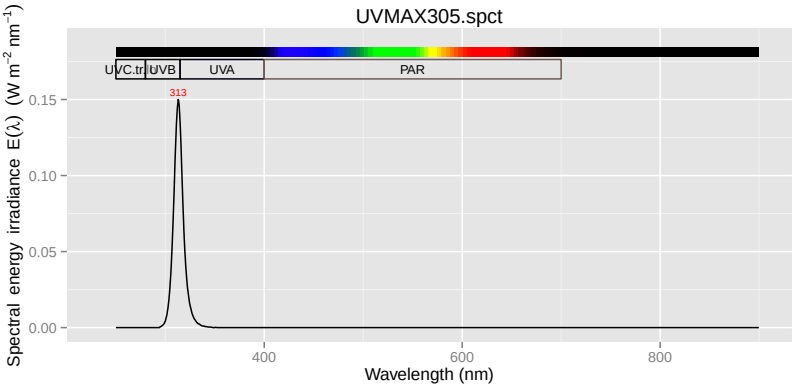



```
plot(UVMAX340.spct)
```



5.2 UV-B

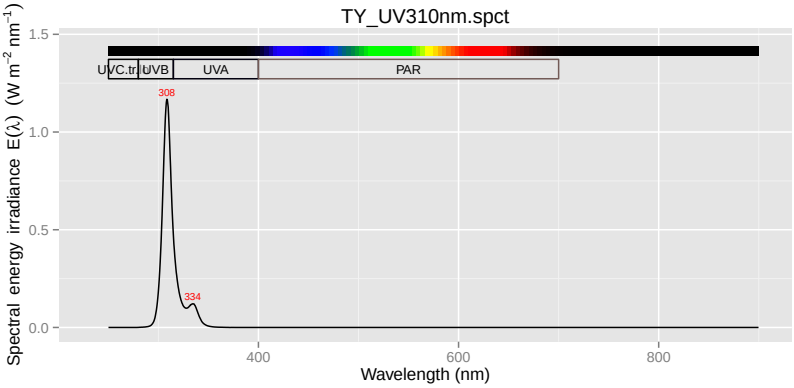
```
plot(UVMAX305.spct)
```



6 Tao Yuan LEDs

6.1 UV-B

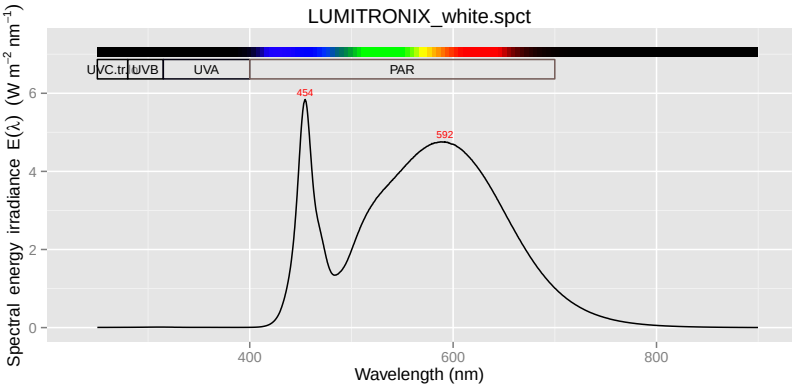
```
plot(TY_UV310nm.spct)
```



7 LUMITRONIX LED arrays

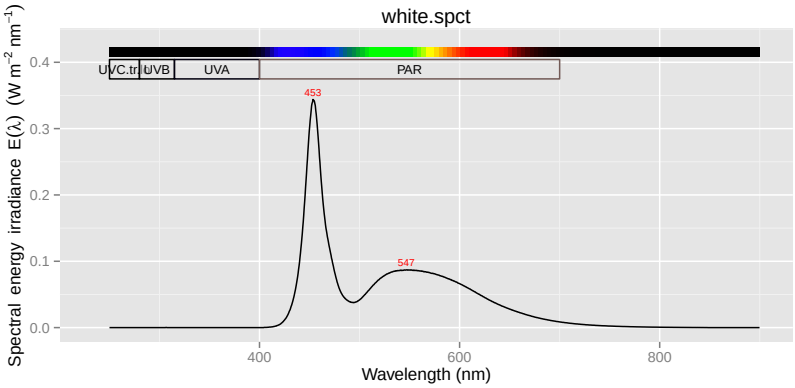
7.1 Natural white

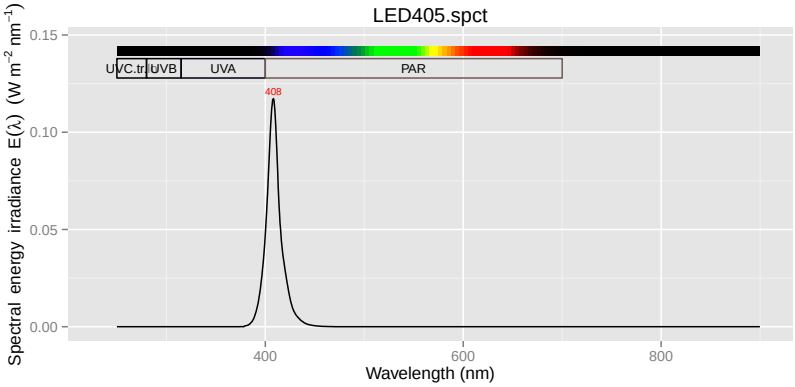
```
plot(LUMITRONIX_white.spct)
```

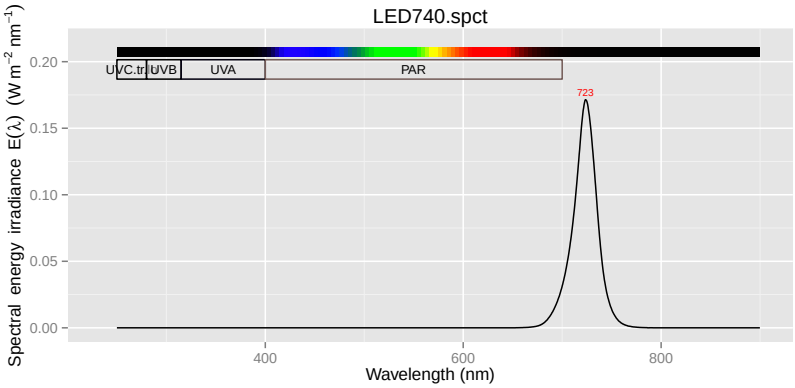


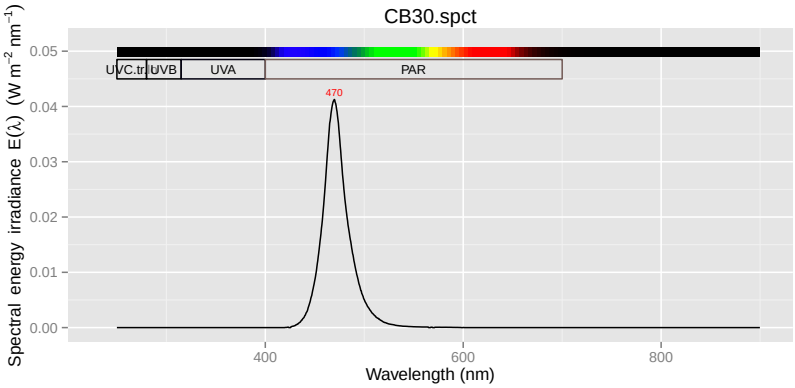
8 Other LEDs and LED arrays

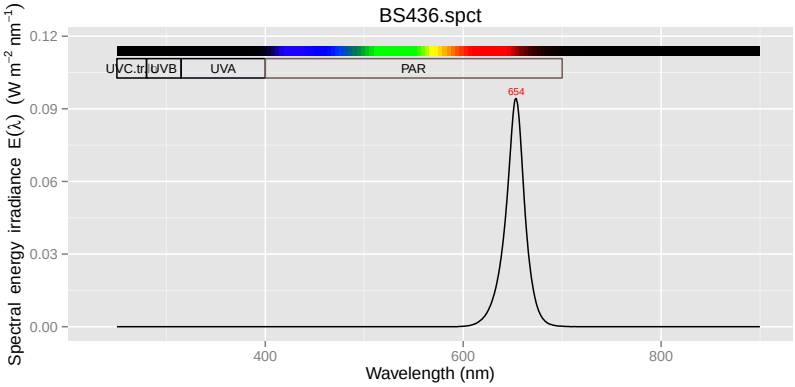
```
plot(white.spct)
plot(LED405.spct)
plot(LED740.spct)
plot(CB30.spct)
plot(BS436.spct)
```


white.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
UVC.tr
UVB
UVA
PAR
453
547
0.0
0.1
0.2
0.3
0.4
400
600
800
Wavelength (nm)


LED405.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
UVC.tr
UVB
UVA
PAR
408
0.00
0.05
0.10
0.15
400
600
800
Wavelength (nm)


LED740.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
UVC.tr
UVB
UVA
PAR
723
0.00
0.05
0.10
0.15
0.20
400
600
800
Wavelength (nm)


CB30.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
0.05
0.04
0.03
0.02
0.01
0.00
UVC.tr
UVB
UVA
PAR
470
400
600
800
Wavelength (nm)


BS436.spct
Spectral energy irradiance E(λ) (W m^{-2} nm^{-1})
0.12
0.09
0.06
0.03
0.00
UVC.tr
UVB
UVA
PAR
654
400
600
800
Wavelength (nm)