photobiologyLamps Version 0.1.1
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(photobiologyLamps)
library(photobiologyLEDs)
library(photobiologygg)

## Loading required package:  proto
## Loading required package:  splus2R
## Loading required package:  plyr
```

We define a function to do the actual plotting so as to not repeat code, and to make changes easier in the future.

```
lamp.plotter <- function(lamp.name, w.low = 250, w.high = 900, scaled = "area") {
    w.length.out <- seq(from = w.low, to = w.high, length.out = 300)
    spectrum.data <- calc_source_output(w.length.out = w.length.out, source.name = lamp.name,
        scaled = scaled, fill = 0)
    spectrum.data <- na.omit(spectrum.data)
    fig_energy <- ggplot(aes(x = w.length, y = s.e.irrad), data = spectrum.data) +
        xlim(w.low, w.high) + labs(x = "Wavelength (nm)", y = "Spectral energy irradiance\n(rel. units)",
        title = lamp.name) + geom_line() + stat_peaks(ignore_threshold = 0.33,
        colour = "red")
    # fig_photon <- ggplot(aes(x=w.length, y=s.q.irrad), data=spectrum.data) +
    # xlim(w.low, w.high) + labs(x='Wavelength (nm)', y='Spectral photon
    # irradiance\n(rel. units)', title=lamp.name) + geom_line() +
    # stat_peaks(ignore_threshold=0.33, colour='red')
    print(fig_energy)
    # print(fig_photon)
}
```
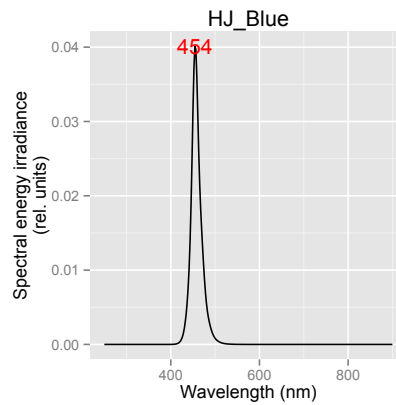
2 Norlux LED arrays

RGB array

```r
Norlux.LEDs <- c("Norlux_R", "Norlux_G", "Norlux_B")
for (lamp in Norlux.LEDs) {
    lamp.plotter(lamp.name = lamp)
}
```
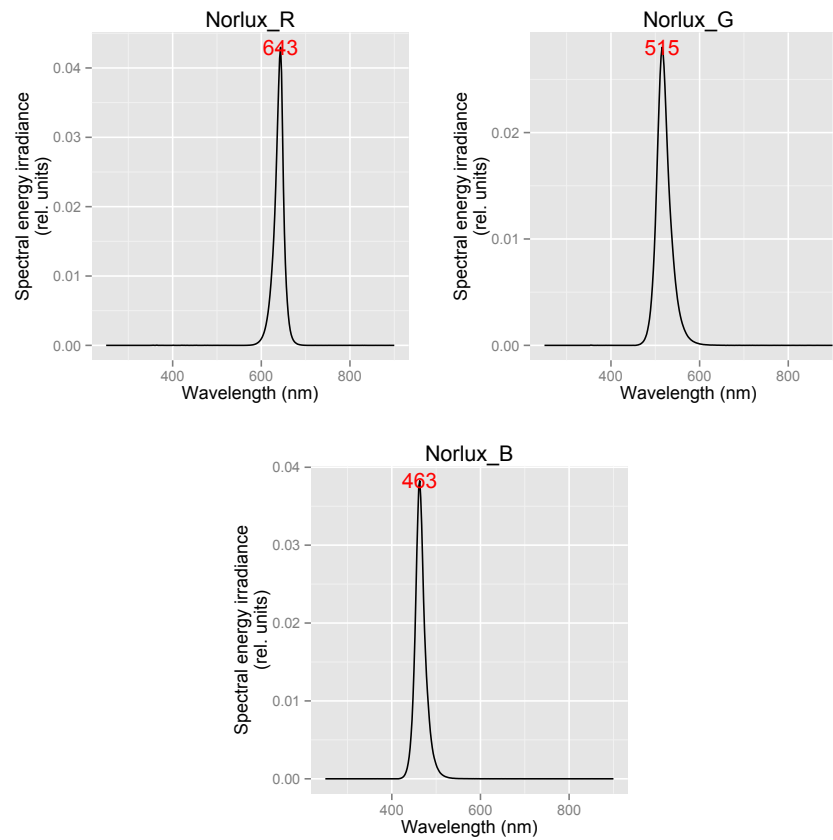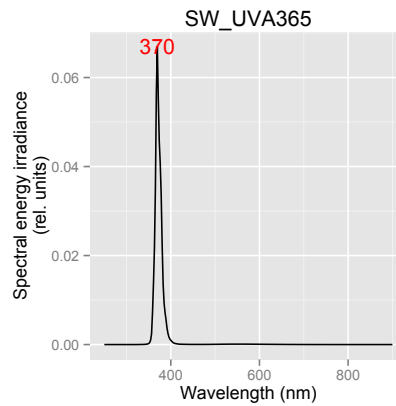

3 Huey-Jann LED arrays

```r
HJ.LEDs <- c("HJ_Blue")
for (lamp in HJ.LEDs) {
    lamp.plotter(lamp.name = lamp)
}
```

HJ_Blue

4 Shezhen Weili LED arrays

```r
SW.LEDs <- c("SW_UVA365")
for (lamp in SW.LEDs) {
    lamp.plotter(lamp.name = lamp)
}
```


SW_UVA365

5 Roithner Laser LEDs and LED arrays

5.1 UV

```r
RL.UV.LEDs <- c("XSL365", "XSL370", "XSL375", "UV395")
for (lamp in RL.UV.LEDs) {
    lamp.plotter(lamp.name = lamp)
}
```