Wurtzite QW LED simulation

In the following tutorial we demonstrate how can a wurtzite single Quantum well diode be simulated.

The structure is built from the following composition depicted in Figure 1.

Figure 1: Band edges without external bias

The band edges can be simulated upon external bias, which is plotted in Figure 2.

Figure 2: Band edges and quasi-Fermi levels of the **p-i-n** diode under forward bias (2.8V)

The bias voltage dependence of the structure can be simulated using drift diffusion method, coupled various recombination processes (SRH, Auger, Direct recombination) The emission spectra due direct recombination is plotted in figure 3.

Figure 3: Emission spectrum of the structure

The quantum efficiency is plotted in 4.

Figure 4: Internal quantum efficiency

The input file can be downloaded from here