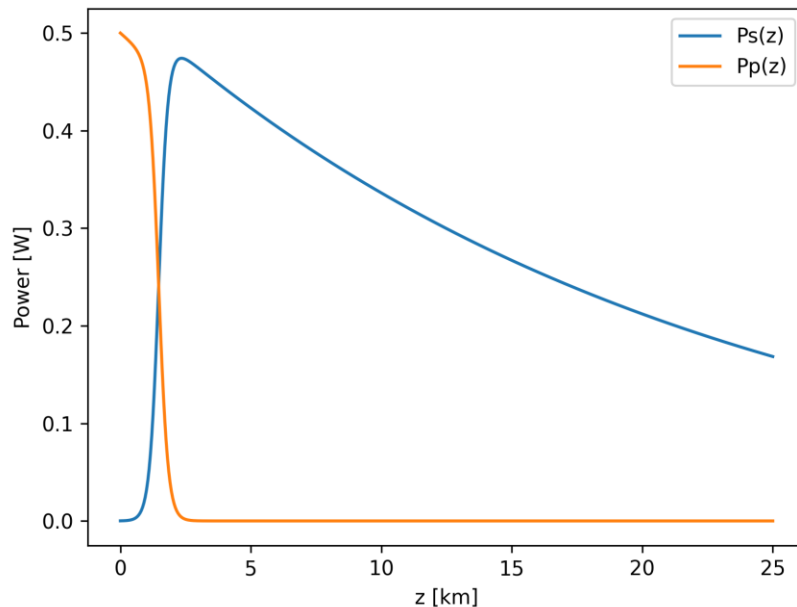# Raman Aplification Simulator 04-09-2025

Pump and Signal Powers over distance

Parameters:
- Signal power (initial) - 0.1 mW
- Signal wavelength – 1470 nm
- Pump power (initial) - 0.5 W
- Pump wavelength – 1455 nm
- Fiber – Dispersion Compensating Fiber
- Fiber length – 25 km
- Fiber loss – 4.605*10^(-5) 1/m

Calculating Net Gain

Parameters:
- Signal power (initial) - 0.1 mW
- Signal wavelength – 1470 nm
- Pump power (initial) - 0.5 W
- Pump wavelength – 1455 nm
- Fiber – Dispersion Compensating Fiber
- Fiber length – 25 km
- Fiber loss – 4.605*10^(-5) 1/m

- Net gain is calculated as:
  signal power at end of fiber / pump power at start of fiber

- G_net = 0.313

Calculating Gain on/off

- The difference in signal power at end of fiber with and without the pump at the start of the fiber:

- G_on_off = G_with / G_without

   = 40.879 dB

- Parameters:
- Signal power (initial) - 0.1 mW
- Signal wavelength – 1470 nm
- Pump power (initial) - 1.24 W
- Pump wavelength – 1455 nm
- Fiber – Super Large Effective Area Fiber
- Fiber length – 10 km
- Fiber loss signal – 0.0437*10^(-3) 1/m
- Fiber loss pump– 0.0576*10^(-3) 1/m