$$ds * dA * \frac{\text{rate of energy absorbed}}{\text{volume}} = (I|_s - I|_{s+ds})dA$$

$$\int_{I_\lambda e^{\tau_\lambda}|_{\tau_\lambda=0}}^{I_\lambda e^{\tau_\lambda}|_{\tau_\lambda=\tau_\lambda}} (dI_\lambda e^{\tau_\lambda}) = \int_{\tau_\lambda=0}^{\tau_\lambda=\tau_\lambda} S(\tau_\lambda, \hat{s}) e^{\tau_\lambda} d\tau_\lambda$$

$$\frac{\partial I_1}{\partial \tau_\lambda} = \frac{\partial}{\partial \tau_\lambda}(2\pi \int_{-1}^{1} \mu I_\lambda(\tau_\lambda) d\mu)$$

$$\frac{\partial I_1}{\partial \tau_\lambda} = 2\pi(\int_{-1}^{1} \mu \frac{\partial}{\partial \tau_\lambda} I_\lambda(\tau_\lambda) d\mu)$$

# Part I
# OpenFOAM Radiation Models

## 1 P1 Model

### 1.1 How to use:

#### 1.1.1 Introduction

The P1 model is part of spherical harmonics model and it does well in optically thick medium [**?**].

# Part II
# Bibliography