

Exercise: Science at SESAME

We have seen that the wavelength of the radiation emitted by an undulator is given by:

$$\lambda_n = \frac{\lambda_u}{2\gamma^2 n} \left(1 + \frac{K^2}{2} + \gamma^2 \theta^2 \right). \quad (1)$$

Calculate the wavelength and the energy of the first harmonic radiation emitted on-axis by an undulator whose period is 5 cm, inserted on a storage ring of energy 2 GeV, for $K = 1$ and $K = 2$.

Explain the physical meaning of the parameter K .