

We consider a twisted quantum wave guide i.e. a domain of the form  $\Omega_\theta := r_\theta\omega \times \mathbf{R}$  where  $\omega$  is a connected open and bounded subset of  $\mathbf{R}^2$  and  $r_\theta = r_\theta(x_3)$  is a rotation by the angle  $\theta(x_3)$  depending on the longitudinal variable  $x_3$ . We are interested in the spectral analysis of the Dirichlet Laplacian  $H$  acting in  $\Omega_\theta$ . We suppose that the derivative  $\dot{\theta}$  of the rotation angle can be written as  $\dot{\theta}(x_3) = \beta - \epsilon(x_3)$  with a positive constant  $\beta$  and  $\epsilon(x_3) \sim L|x_3|^{-\alpha}$ ,  $|x_3| \rightarrow \infty$ . We show that if  $L > 0$  and  $\alpha \in (0, 2)$ , or if  $L > L_0 > 0$  and  $\alpha = 2$ , then there is an infinite sequence of discrete eigenvalues lying below the infimum of the essential spectrum of  $H$ , and obtain the main asymptotic term of this sequence.