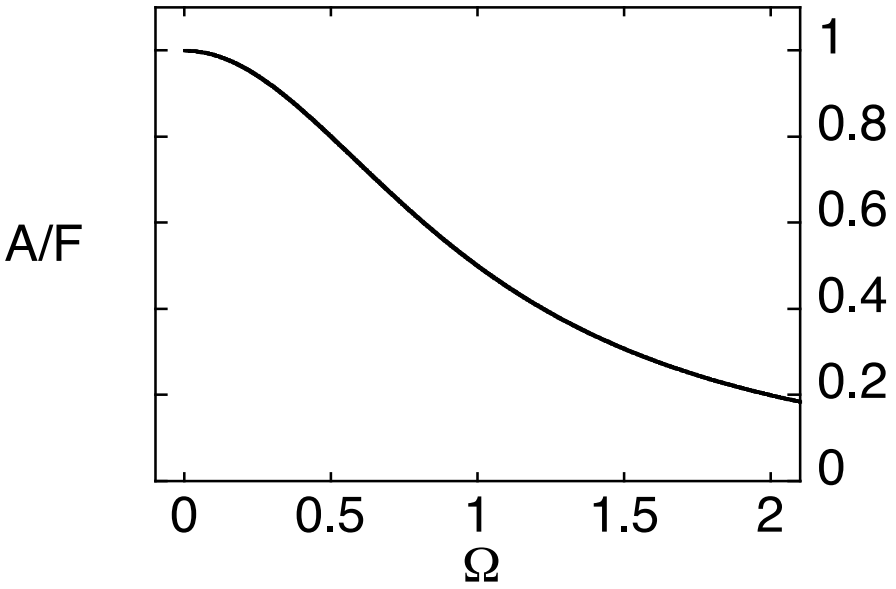
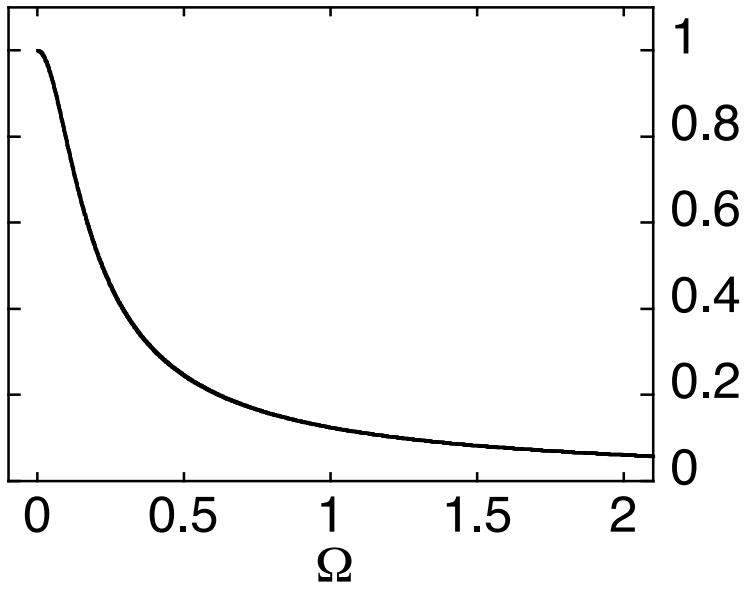
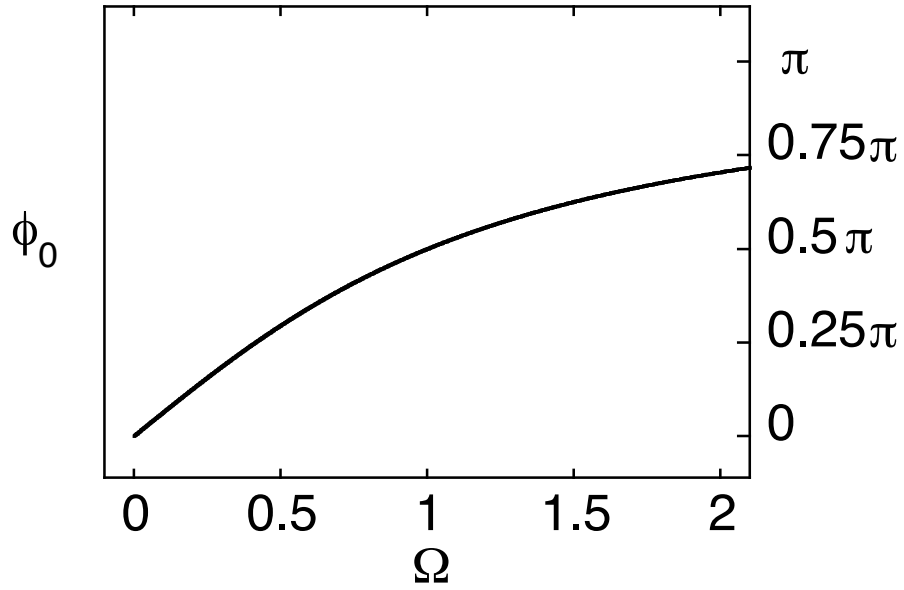
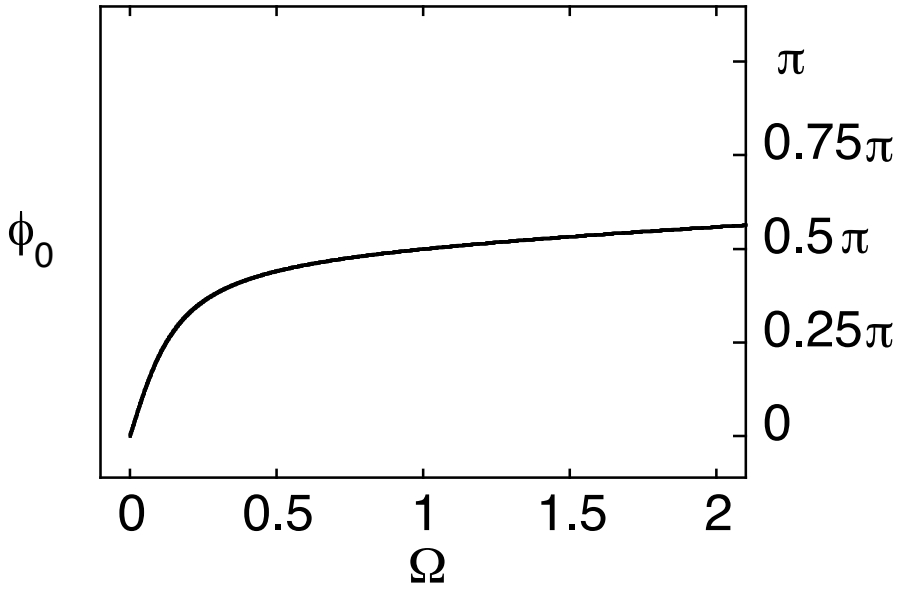


—β = 2; p = 1 = ω_0= 1



—β = 8; p = 4 > ω_0= 1