
Crash Course in Theoretical Particle Physics

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–HOMEWORK EXERCISES–

4.3 Quantifying drawings of quantum interactions

Assuming mass m for ϕ and mass M for Φ , for each of the cases in Ex 4.1,...

- (a) ... calculate the amplitude F for the given interaction and ...
- (b)
- ... in case of one particle in the initial state, calculate the total decay width Γ in the particle's rest frame.
 - ... in case of two particles in the initial state, calculate the differential cross section $d\sigma/d\Omega$ in terms of $s, \cos\theta, m$ and M in the center of mass frame.