1 Special relativity: kinematics

Definition 1.1. Reference system

Definition 1.2. Let R be a reference system. We say S is *inertial* if and only if a free particle moves with respect to R at a constant velocity following a straight line. In that case, we denote it by SI.

2 Relativistic dynamics

Definition 2.1. Action

$$S[q_\alpha] \coloneqq \int L(q_\alpha, \dot{q}_\alpha, t)\,\mathrm{d}t \tag{1}$$

Axiom 1. *Minimum action principle.*