CHAPTER OVERVIEW

9: Relativistic Kinematics

One of the features of particle physics is the importance of special relativity. This occurs at a very fundamental level, since particle physics is all about creating and annihilating particles. This can only occur if we can convert mass to energy and vice-versa. Thus Einstein's idea of the equivalence between mass and energy plays an extremely fundamental rôle in this field of physics. In order for this to be possible we typically need processes that occur at velocities near the light velocity c, so that the kinematics (i.e., the description of momenta and energy) of these processes requires relativity. In this chapter we shall succinctly introduce the few necessary concepts – I hope that for most of you this is a review, but this chapter is intended to be self-contained and contains everything I shall need in relativistic kinematics.

Thumbnail: A sketch of a collision between two particles.

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