20.1: Introduction

The general motion of a rigid body of mass m consists of a translation of the center of mass with velocity $\overrightarrow{\mathbf{V}}_{cm}$ and a rotation about the center of mass with all elements of the rigid body rotating with the same angular velocity $\vec{\omega}_{\mathrm{cm}}$. We prove this result in Appendix A. Figure 20.1 shows the center of mass of a thrown rigid rod follows a parabolic trajectory while the rod rotates about the center of mass.

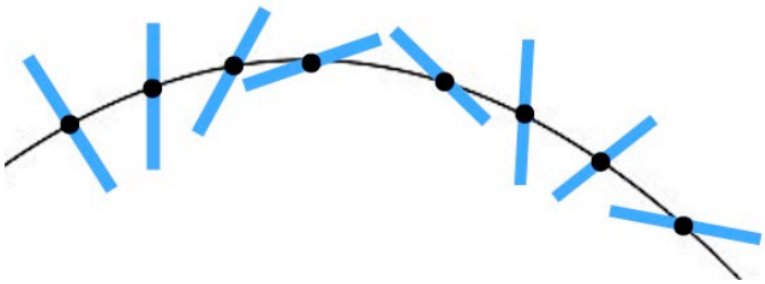

Figure 20.1 The center of mass of a thrown rigid rod follows a parabolic trajectory while the rod rotates about the center of mass.