

**Figure 4.5:** Schematic views of a bicycle. The steering angle is  $\delta$ , and the roll angle is  $\varphi$ . The center of mass has height h and distance a from a vertical through the contact point  $P_1$  of the rear wheel. The wheelbase b is the distance between  $P_1$  and  $P_2$ , and the trail c is the distance between  $P_2$  and  $P_3$ .