

The diagram shows two overlapping circles representing particles. The upper circle is labeled  $M_{\text{imp}}$  and the lower circle is labeled  $M_{\text{tar}}$ . The radius of the impactor is  $R_{\text{imp}}$  and the radius of the target is  $R_{\text{tar}}$ . The overlapping region is shaded with diagonal lines and is divided into two sub-regions:  $A_{\text{tar}}$  (the portion closer to the target) and  $A_{\text{imp}}$  (the portion closer to the impactor). To the right of the circles, a vertical dashed line indicates the impact parameter  $y$ . The impact parameter for the impactor is  $y_{\text{imp}}$  and for the target is  $y_{\text{tar}}$ . The vertical distances from the horizontal center lines to the points of tangency are labeled  $h_{\text{tar}}$  and  $h_{\text{imp}}$ . Arrows indicate the direction of motion for both particles towards the collision point.

The diagram illustrates a collision between two particles, labeled  $M_{\text{imp}}$  (impinging particle) and  $M_{\text{tar}}$  (target particle). The particles are represented as circles. The impinging particle is moving to the left, as indicated by the velocity vector  $v_{\text{imp}}$ . The target particle is initially at rest. The impact parameter,  $b$ , is the perpendicular distance from the initial path of the impinging particle to the center of the target particle. The distance from the center of the impinging particle to the point of contact is labeled  $R_{\text{imp}}$ . The distance from the center of the target particle to the point of contact is labeled  $R_{\text{tar}}$ . The region of the impinging particle that is in contact with the target particle is shaded with diagonal lines and labeled  $V_{\text{hit, imp}}$ . The region of the target particle that is in contact with the impinging particle is shaded with diagonal lines and labeled  $V_{\text{hit, tar}}$ . A horizontal axis labeled  $x$  points to the right.