(A) $k = 3$: Collision-free
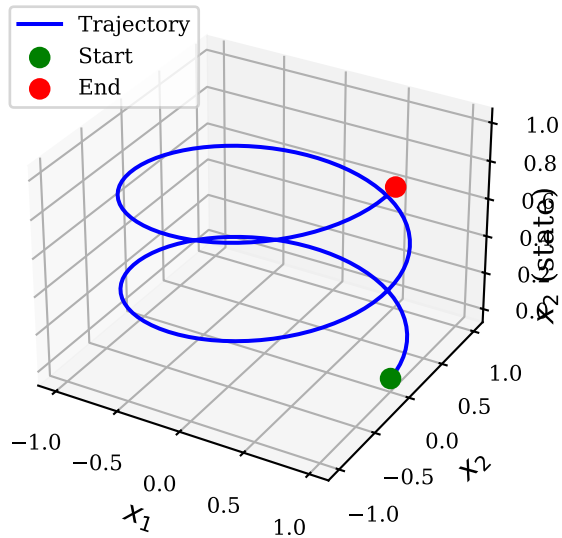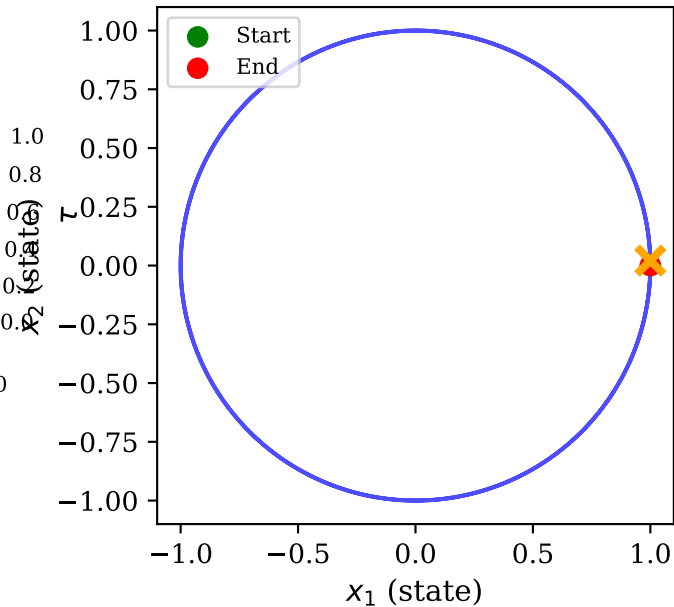
(B) $k = 2$: Collisions (orange X)

(C) Collisions vs. dimension