

Robotics II

September 19, 2013

Consider a planar RPPR robot moving on the horizontal plane, with coordinates $q = (q_1, q_2, q_3, q_4)$ defined as in Fig. 1.

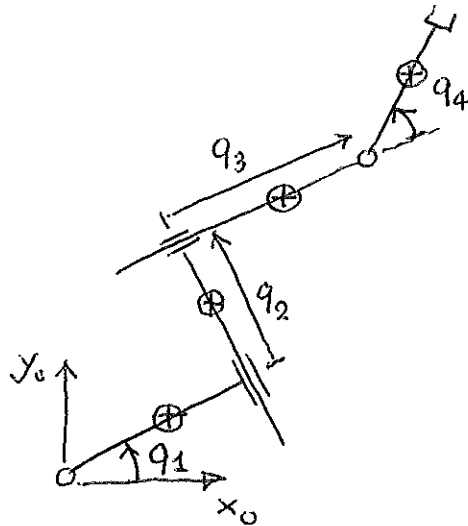


Figure 1: Planar RPPR robot and its generalized coordinates

- Determine the inertia matrix $B(q)$ of the robot.
- Suppose that the robot is initially at rest, and that a torque τ_4 is applied to joint 4. Determine under which conditions and configurations will the first joint instantaneously accelerate.

[120 minutes; open books]