



**Phase #0**

**Model:** KINOVA\_arm\_reverse.bioMod  
**Phase duration:** 0.5 s  
**Shooting nodes:** 30  
**Dynamics:** TORQUE\_DRIVEN  
**ODE:** RK4  
**Control type:** CONSTANT

**Parameters**

No parameter set

**Lagrange**

(MINIMIZE\_CONTROL)<sup>2</sup>

**Weight:** 1

**key:** tau

**Index in list:** 0

(MINIMIZE\_STATE)<sup>2</sup>

**Weight:** 1

**key:** q

**Index in list:** 1

(MINIMIZE\_STATE)<sup>2</sup>

**Weight:** 1

**key:** qdot

**Index in list:** 2

(PROPORTIONAL\_STATE)<sup>2</sup>

**Weight:** 0.1

**key:** q

**first dof:** 10

**second dof:** 11

**coef:** 1

**Index in list:** 5

(PROPORTIONAL\_STATE)<sup>2</sup>

**Weight:** 0.1

**key:** qdot

**first dof:** 10

**second dof:** 11

**coef:** 1

**Index in list:** 6

**Mayer**

(SUPERIMPOSE\_MARKERS)<sup>2</sup>

**Weight:** 10000

**first marker:** md0

**second marker:** mg2

**Index in list:** 3

**Shooting nodes index:** Node.END

(MINIMIZE\_STATE - [-0.040 0.477 -0.014 0.273 -0.194 -0.284 -0.321 0.812 ...  
... 0.331 0.586 0.381 0.211 ])<sup>2</sup>

**Weight:** 10

**key:** q

**Index in list:** 4

**Shooting nodes index:** Node.END

**Constraints**

SUPERIMPOSE\_MARKERS

**Min bound:** 0

**Max bound:** 0

**first marker:** mg1

**second marker:** md0

**Index in list:** 0

**Shooting nodes index:** 0

SUPERIMPOSE\_MARKERS

**Min bound:** 0

**Max bound:** 0

**first marker:** grd\_contact1

**second marker:** Contact\_mk1

**Index in list:** 1

**Shooting nodes index:** 0

SUPERIMPOSE\_MARKERS

**Min bound:** 0

**Max bound:** 0

**first marker:** grd\_contact2

**second marker:** Contact\_mk2

**Index in list:** 2

**Shooting nodes index:** all