Finite element simulation was implemented in COMSOL. A PI controller is implemented in Labview. The IPMC tip is asked to follow a circular trajectory. COMSOL multi-physics simulations accurately model the experimental displacement results. Optimization performed using the multi-physics model to find the maximum deflection, force, and twisting. Using the closed loop control system accurate IPMC tip location can be achieved. This control system has been extended to function using a computer mouse as an input. Thanks to our Graduate Coordinator Professor Yim. This work was supported in part by the National Science Foundation (Award No. 0958565).

References