ABSTRACT

A system and method for etching workpieces in a uniform manner are disclosed. The system includes a semiconductor processing system that generates a ribbon ion beam, and a workpiece holder that scans the workpiece through the ribbon ion beam. The workpiece holder includes a portion that extends beyond the workpiece, referred to as a halo. The halo may be independently heated to compensate for etch rate non-uniformities. In some embodiments, the halo may be independently biased such that its potential is different from the potential applied to the workpiece. In certain embodiments, the halo may be divided into a plurality of thermal zones that can be separately controlled. In this way, various etch rate non-uniformities may be addressed by controlling the potential and/or temperature of the various thermal zones of the halo.