

The Multipole Ion-beam Experiment (MIX)

Alexander J. Klein

The MIX device is an IEC experiment incorporating a powerful electromagnet which served also as cathode and ion accelerator. The magnetic field is of the multi-pole variety (truncated cube geometry). Included in the design are computer controlled ion-focusing electrodes, electron suppression electrodes, electron guns, and low ion energy recovery electrodes. Although mothballed, the MIX device incorporates several types of ion sources, a suite of ambitious and novel diagnostics, and many other features that make it interesting as a 'state of the art' IEC system.

The MIX experiment was one of the very few privately funded fusion energy projects in recent history, and although modest in scale relative to magnetic confinement schemes, the resources used to construct the MIX device in 2010 exceeded the sum total of all other global IEC funding. This poster describes the experimental apparatus, associated hardware/software, and diagnostics.