

**WPS Prototype for an Automatic 2D Smoothing of a Storage Ring, D. ROUX, ESRF** - The Wire Positioning System is designed to perform a continuous radial survey of the storage ring. The motorization of radial plates and girders should enable realignment with beam in the X plane. This should considerably reduce intervention time during shutdown periods (the ESRF Machine will run for 6000 hours a year). The definition of the horizontal measurement range is independent of the vertical position of the wire. Absolute precision of positioning can, at best, be guaranteed to within 10 microns, whereas relative positioning can be guaranteed to within 1 micron, the resolution being less than 0.3 microns. Integrating this into the ESRF calls for a total of 416 WPS sensors and 64 double fixed points. The motorization consists of installing 192 motors on the quadrupole girders. The implementation of this system raises severe practical difficulties on the ESRF storage ring which is already built, however this method of automatic survey of the horizontal plane should be applied to all new machines.