

**New Performances of the CW High-Intensity Light Ion Source (SILHI),** P.-Y. BEAUVAIS, D. BOGARD, G. CHARRUAU, A. FRANCE, R. FERDINAND, R. GOBIN, F. HARRAULT, J.-L. JANNIN, J.-M. LAGNIEL, P.-A. LEROY. CEA/DSM/DAPNIA/SEA, CEA-SACLAY, 91191 Gif-Sur-Yvette, France - The ECR source SILHI (High Intensity Light Ion Source) is being studied at CEA-Saclay to produce 100 mA proton or 140 mA deuteron beam. An output energy of 95 keV and an rms normalized emittance lower than  $0.2 \pi \cdot \text{mm} \cdot \text{mrad}$  were the target parameters. This source will be dedicated to the injector of the CW IPHI demonstration project. Extensive measurements have been performed with hydrogen as the injected gas. In April 1997, 108 mA of beam was extracted through an 8 mm diameter aperture plasma-electrode. The measured rms normalized emittance for an 80 mA of beam at 80 keV was  $0.17 \pi \cdot \text{mm} \cdot \text{mrad}$ . A new molybdenum plasma electrode with a 10 mm diameter-aperture allowed us to produce even higher i.e. 122 mA of total beam at 92 keV. We will compare the beam characteristics for both the extraction configurations. As a first attempt to measure the long term reliability of the ion source, 96% availability was recorded during 103 hours of continuous operation with a 100 mA of total beam at 78 keV. Complete results for this test-run will be presented. Initial results of operating the source in a pulsed mode will also be reported.