Two Approaches for H- Ion Production with 2.45 GHz Ion Sources.

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Abstract : In the last few years, the accelerator community requests pushed to improve the development of negative hydrogen ion sources. For spallation sources like SNS or ESS, pulsed high intensity H- beams ranging few tens of milliamperes were required with duty cycle close to 10 %. New facilities like CERN ask also high performance negative ion beams. After CEA undertook an ECR based ion source program, a European network devoted to high performance negative ion source development was created. In this group, the several laboratories developing 2.45 GHz ECR sources follow different approaches to increase the extracted current. At Saclay, with a solenoidal magnetic structure based on coils, close to 4 mA of H- ion beam is now extracted in pulsed mode (2 ms/100ms). At Ecole Polytechnique, on the source Camembert III, photodetatchment measurements showed comparable H- ion creation while the primary electrons are provided by filaments or small ECR modules inserted in the plasma chamber. Both experiments as well as future plans will be reported.