



Contribution ID: 138

Type: **Poster**

## **RF power conditioning of the Elettra's cavities with UHV NEG technology.**

*Tuesday 19 June 2018 18:00 (20 minutes)*

Elettra is a third generation synchrotron radiation light source in operation at Trieste (Italy). This light is produced by the interaction of high energy, high intensity electron beam with dedicated magnetic fields. The electron beam gains its high energy thanks to the electromagnetic field built and stored into the Radio Frequency (RF) cavities. The typical accelerating electric field of the RF cavities is in the MV/meter range and in the tens of kW RF power range. Ultra-High Vacuum (UHV) is the mandatory prerequisite to accommodate and sustain the accelerating electric field in the resonant structure like the Elettra's cavities together with the proper choice of the manufacturing materials, high purity oxygen free copper, and the UHV cleaning procedure. The evacuation procedure of the RF cavity from atmospheric pressure to UHV is the crucial factor to obtain the full high power Radio Frequency (RF) conditioning and, therefore, full operability of the accelerating structure. Until recently, the sputter-ion pump was the best choice to reach and operate in the E-10 mbar range, while nowadays the optimized combination of a compact ion element with the Non Evaporable Getter (NEG) technology represents a valid alternative. The two technologies have been tested on the Elettra's cavities during the RF power conditioning procedures and the results are presented here.

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**Session Classification:** Poster Session Tuesday

**Track Classification:** Vacuum in Accelerators