TEMPERATURE MEASUREMENTS OF THE NSLS-IIVACUUM COMPONENTSBROCKHAUS

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This paper is dedicated to the analysis of our recent experience from ramp-up of operating current at NSLS-II from 25 mA at the end of commissioning in 2014 to 475 mA achieved in studies today. To approach the design level of the ring intensity we had to solve major problems in overheating of the chamber components. Since the beginning of the NSLS-II commissioning, the temperature of the vacuum components has been monitored by the Resistance Temperature Detectors (RTDs) located predominantly outside of the vacuum chamber and attached to the chamber body. A several vacuum components were designed with the possibility for internal temperature measurements under the vacuum as diagnostic assemblies. Temperature map helps us to control overheating of the vacuum components around the ring especially during the current ramp-up. The average current of 475mA has been achieved with two main 500MHz RF cavities and w/o harmonic cavities.





Figure 3: a) GLIDCOP RF fingers of the bellows with attached RTDs for internal temperature measurements. b) Internal temperature measurements at $V_{RF} = 3MV$ (blue dots) and the data fit (dark cyan solid line). The dashed purple line is the predicted data at $V_{RF} = 4.5MV$

