

DATE: August 13, 2004

TO: RHIC E-Coolers

FROM: *Ady Hershcovitch*

SUBJECT: **Minutes of the August 13, 2004 Meeting**

Memo

Present: Ilan Ben-Zvi, Andrew Burrill, Rama Calaga, Peter Cameron, Xiangyun Chang, Yury Eidelman (ORNL & BINP Novosibirsk, Russia), Alexei Fedotov, Wolfram Fischer, Ady Hershcovitch, Jorg Kewisch, Derek Lowenstein, William Mackay, Nikolay Malitsky, David Pate, Thomas Roser.

Topics discussed: ZDR, 939 Experiments

ZDR: the meeting started as usual in building 911 where Ilan gave a report on the status of the ZDR. It is one ZDR that covers both the ERL and the RHIC electron beam cooling. The ZDR contains an introduction that includes a section written by Thomas Ludlam, the science of RHIC II, physics justification for cooling, theory of electron beam cooling, results of various simulations, and detailed description of various ERL and RHIC electron beam cooling components. Many of the elements can be used for both the ERL and the electron beam cooler. The major difference between the two systems is that electron beam cooling requires large magnetization, and therefore, larger magnet bores. Additionally, electron beam cooling will need debunching cavities.

In answer to Derek's questions, Ilan replied that the ERL section of the ZDR is almost complete including schedule and cost estimates. The electron beam cooling section of the ZDR is expected to be completed by the end of this year. Ilan also said that before a DOE nuclear physics review, he plans to have two internal reviews: one by the Novosibirsk group, the other by BNL personnel with outside experts.

939 Experiments: the second part of the meeting took place in building 939, where Rama, Xiangyun, and Andrew described three experiments. Rama showed a 5 cell copper cavity that is a model of the niobium superconducting cavity. In this cavity studies of the RF characteristics, especially of those of High-Order Modes (HOMs) are made. Next step is to insert ferrites to see how much are the HOMs damped. Xiangyun showed the setup where the diamond amplification of photo-emission electrons is studied. Finally, Andrew showed the setup where deposition studies of the cesium-phosphorous-antimony are made, and he showed the test stand where a superconducting RF gun is being tested. The gun recently achieved 0.5 nC per pulse.