

*DATE:* June 25, 2004

*TO:* RHIC E-Coolers

*FROM:* *Ady Hershcovitch*

*SUBJECT:* **Minutes of the June 25, 2004 Meeting**

Memo

Present: Andrew Burrill, Alexei Fedotov, Wolfram Fischer, Ady Hershcovitch, Animesh Jain, Dmitry Kayran, Jorg Kewisch, Vladimir Litvinenko, Derek Lowenstein, Nikolay Malitsky, Christoph Montag, Thomas Roser, Jie Wei.

Topics discussed: Beam – Beam Parameter Calculation & DOE Presentation.

**Beam – Beam Parameter Calculation:** Alexei opened the meeting by presenting the latest beam – beam parameter calculations. This parameter starts to grow rapidly with cooling and reaches a value of  $5 \exp(-3)$  within two hours. A discussion followed regarding what is a “safe” and realistic beam – beam parameter.

Resolving this issue can be done by lowering  $\beta^*$  with time such that the beam – beam parameter saturates. Alexei showed that by starting with low  $\beta^*$  luminosity can be increased without having problems due to the beam – beam parameter.

**DOE Presentation:** Thomas is scheduled to make a presentation to DOE next week on RHIC E-Cooling. Thomas showed his last presentation [to Nuclear Science Advisory Committee (NSAC)], and went over all its information to ensure that it is up-to-date, since there have been a number of new developments.

The most important graphs that show luminosity versus time in RHIC with and without electron beam cooling are still fairly consistent with current calculations. With cooling achievable luminosity is still  $80 \exp(26) \text{ cm}^{-2} \text{ sec}^{-1}$ . Vladimir suggested adding the theoretical limit. The table of parameters requires some changes to reflect the new calculations. In answer to Thomas’ question Andrew replied that expected enhancement with the diamond cathode could be a factor of 30 – 80 (to be entered in the electron gun section. For the superconducting cavity, the operating frequency is now 703.75 MHz (instead of 700 MHz). On the main ERL setup diagram Ady suggested incorporating the expected beam dump shape and size. Finally, on magnet slide, it was added that the 5 Tesla magnet design started.