

## **Accelerator Physics review of Low Energy RHIC electron Cooling (LEReC)**

Collider-Accelerator Department, Bldg. 911B, Large Conference Room

August 13 – 14, 2013

### ***Committee:***

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### ***Charge***

We ask you to review the physics of the proposed Low Energy RHIC e-Cooler (LEReC) for heavy ion beam energies from about 4 to 10 GeV/u. Our proposed e-cooler is based on bunched non-magnetized electron beam generated by an SRF accelerator. Focusing and compensating for the space charge forces would be achieved by series of weak short solenoids.

We ask you to evaluate the physics of this design, to consider possible showstoppers and suggest potential solutions for problems. We also ask you to comment on other issues of Low Energy RHIC operation, including the use of a low frequency RF system with tunable frequency.

Specifically we ask you to answer the following questions:

1. Is the proposed cooling system suitable for achieving the goal of the low-energy RHIC program?
2. Are the parameters of the electron beam needed for the cooling achievable with our design?
3. Identify accelerator physics issues requiring immediate attention prior to the engineering design of the LEReC.
4. Please also make recommendations on possible improvements in the present LEReC accelerator design.

It is requested that a concise report responsive to this charge be forwarded to the C-AD Chair Thomas Roser by September 2, 2013.