

**Prospectus:**

The topic of my thesis, though not yet well defined, will be within the scope of the following two topics. First, would be an analysis of anisotropic flow parameters in gold-gold collisions at the Relativistic Heavy Ion Collider, or RHIC. Specifically, I would perform a detailed characterization of the flow contribution resulting from the  $V_3$  parameter, at lower energies than have been analyzed previously. This analysis could yield new information on the geometrical conditions of the colliding nuclei, as well as illuminate conditions that may create irregularities in jets and cones resulting from the collision. Another option, which I have yet to explore, would be to work in a team on the development and improvement of reconstruction algorithms. In the analysis of data at RHIC, scientists use pre-developed algorithms in the reconstruction of tracks such as jets, and decays. These algorithms must be optimized as well as tested before being used for scientific analysis. If interested, I could join the team and contribute to the development and testing of these algorithms.

**Timeline:**

May–July 2011: In depth research and analysis of possible topics.

Goals include complete characterization of the  $v_3$  harmonics in a specific set of run data, as well as understanding and progress in jet reconstruction algorithms.

August – September 2011: Outline and precisely define thesis and topics.

Goals include the partial completion of the thesis and the finishing necessities on the research itself.

October – November 2011: Completion of the thesis and defense.

Goals include a finished product well before the defense date, including but not limited to a rough draft by the end of October.

**Bibliography:**

As a result of my topics being fairly new to me, I do not have as many sources as I would like. Also, much of the literature I have been reading are draft papers that are not eligible for publishing from the group at the moment. This in mind, here are some possible sources.

e.a. Jiangyong Jia, (2009), arXiv:hep-ph/0903.3226v2

M. Miller and RS (2003), arXiv:nucl-ex/0312008

Phys. Rev. C80 (2009), arXiv:nucl-th/0707.4672v2

Phys. Rev. Lett. 105 (2010) 062301

e.a. Schenke, B., Phys. Rev. Lett. 106, 042301 (2011)