



New York's BEST Sightseeing and Entertainment Cruises

...not the  
London  
underground  
or the  
Manhattan  
skyline,  
but the  
future of  
high-energy  
physics

# CIRCLE LINE TOUR

by Sharon Butler

**T**his is not a pub crawl at each of the tube stops along London's Circle Line. And it's not a circumnavigation of Manhattan island, the Circle Line Tour its promoters bill as America's best boat ride.



Paul Grannis

Photo by Reidar Hahn

This is a series of high-brow, technical talks on the physics possibilities at potential future accelerators—whether the circular muon or the very large hadron collider, or some form of linear electron collider.

The series began on September 9 and 10 with talks by Ian Hinchliffe and Michael Peskin on prospects for studying supersymmetry at the LHC, the collider now under construction at CERN, and a linear collider. These experts were plied with questions beforehand, and their responses were posted on the Web as background, along with links to relevant scientific papers. The schedule for the talks allows two hours for presentation and extensive discussion.

The physics that scientists want to investigate will determine the outlines of a future collider, said Paul Grannis and Chris Quigg, the tour's organizers.

Practical and political considerations will have a bearing on the issue, of course. Is a muon collider even feasible? Is a very large hadron collider affordable? How long will construction take? Can the international community come together on which project to undertake? Will Congress and the governments of other countries provide the requisite funding? No matter which collider is contemplated, numerous technical questions, as well as economic constraints, need to be addressed.

In fact, many discussions have already taken place on practical problems. But, said Grannis, "until you get a good consensus on the physics you're after, the research community won't line up behind any particular collider."

Discussing the physics at a collider even more advanced than the LHC is complicated by the unknown. In the near and intermediate future, physics results are expected from experiments now or soon to be underway at LEP, the existing circular electron collider at CERN, at Fermilab's Tevatron, and at the LHC.

"To evaluate the potential of any future collider and to help build the consensus needed to focus worldwide support for a new accelerator, it will be essential to understand the capabilities of LEP2, Tevatron, and, in particular, LHC experiments as completely as possible within the confines of realistic physics scenarios," Grannis said.

The organizers are hoping that the discussion in the Fermilab community will lead to follow-on workshops to delineate the desired characteristics of a future accelerator (its beam particles, luminosity and energy, for example).

The next talks, by Hitoshi Murayama, of Lawrence Berkeley National Laboratory, and Daniel Denegri, of CERN, are scheduled for October 21 and 28 at Fermilab.

Watch for postings, and come on board. □