

Physics and philanthropy

Particle physics is big science. That is its allure, and its challenge. The fundamental constraints imposed by quantum mechanics mean that probing ever-smaller scales requires ever-higher energies. Although some may be concerned about the esoteric realms that physicists seek to explore, we need to do so to shed light on such questions as the origin of mass, and even of the Universe itself. We may not be successful, but there is nothing to suggest that the effort will be fruitless.

Nevertheless, it has always been a challenge to convince governments that they should spend huge amounts of money on particle accelerators. And in tough financial times, cutting the funding for such projects is politically safe.

The scientific community (or at least part of it) may protest, but this often looks to congress and the public like self-interested lobbying.

In the US Department of Energy 2006 Budget, the funding allocated to Brookhaven National Laboratory's Relativistic Heavy Ion Collider was enough to operate it for only 12 weeks. Things got worse for RHIC — which collides beams of gold ions head-on, to explore the nature of the strong interaction in a regime where new quark-related phase transitions should occur — when unexpected increases in energy costs meant that the allotted funds were insufficient for even this limited run.

But then a group of private individuals led by Jim Simons — known for the Chern–Simons



A WELCOME RESPITE FOR BROOKHAVEN, BUT WHAT ARE THE LONG-TERM IMPLICATIONS?

topological invariant in theoretical physics, but, more importantly, the billionaire president of one of the most successful hedge funds in history — donated US\$13 million to enable RHIC to run for a full 20 weeks this year.

It's a welcome respite for Brookhaven, but what are the long-term implications? Will governments now assume that large accelerator laboratories can glean support from the private sector, providing an excuse to lower government funding? Perhaps this will bring forefront science back to its philanthropic origins — when wealthy patrons were the primary supporters of research. If so, particle physicists will have cause to root for a bull market.

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