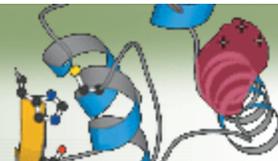


Computing for Biology

IBM-BNL Blue-Genes Science Workshop 2003



In December 1999, IBM announced the start of a multi-year effort to build a *massively parallel* computer to be applied to the study of biomolecular phenomena such as *protein folding*. The Blue Gene project has two main goals: (i) advancing our understanding of biologically important processes via large

scale simulation, particularly the mechanisms behind protein folding and (ii) exploring novel ideas in massively parallel machine architecture and software. This project should enable simulations that are orders of magnitude larger than current technology permits. As the project and the machine architecture have evolved, there has been increasing interest in exploring the application of the computational power enabled by the Blue Gene project to a broader range of scientific problems in biology as well as other disciplines.

The life sciences are receiving special attention from IBM because the field is demonstrating explosive growth and the life sciences are creating what will become one of the most significant industries of the new century. Indeed, with such developments as genomics and bioinformatics, high throughput screening of drug candidates and ready access to information on the internet, the life sciences have benefited from computational capabilities and these applications along with new areas such as systems biology will be driving the requirements for data, network and computational capabilities in the future.

The *Computing for Biology* workshop, co-organized by [IBM Computational Biology Center](#) and [Brookhaven National Laboratory \(BNL\)](#) on July 31– August 1, 2003 will be held on Long Island, New York at BNL. The goal is to promote the formation of research that will combine mathematics and other sciences to try and unlock the secrets that will make it possible one day, to simulate and predict cell behavior much as we simulate weather and microprocessors today.

The workshop will have three focus themes:

- ▶ Biomolecular dynamics simulations,
- ▶ Data mining for high throughput biology
- ▶ Simulation of biological processes.

Workshop Organizers

- ▶ **Brookhaven National Laboratory (BNL)** - Peter Bond, Carl Anderson and James Davenport
- ▶ **IBM** - Ajay Royyuru, Robert Germain, and Gustavo Stolovitzky

Previous Workshops

There have been two previous Blue Gene workshops. You can take a look at the contents of these in the following pointers

- ▶ [San Diego 2001](#)
- ▶ [Edinburgh 2002](#)



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