is a Booster proton intensity of 1.5 x 10^{13} ppp. This will call for a steady accumulation of many small improvements, but must be accomplished to meet the AGS goal of 6 x 10^{13} protons per pulse in 1995. For 1996 an order of magnitude increase in the intensity of the gold beam is the objective.
From Ed Bleser

First RHIC magnets successful

Manufactured by Northrop Grumman Corporation, the first dipole for the Relativistic Heavy Ion Collider (RHIC) heavy ion collider was delivered to Brookhaven on May 2, and successfully cold tested (at 4.6 K) on May 9.

Approximately one month prior to this important RHIC milestone, a quadrupole cold mass (coil and yoke), also made by Northrop Grumman, had undergone successful test. The quadrupole will later become part of a so-called CQS package - an assembly which also includes sextupole and trim "corrector" windings.

The operating current of 5000 A corresponds to a field of 3.46 T in the dipole and a gradient of 71.2 T/m in the quad which in turn translate to 100 GeV per nucleon for gold ions. Precise measurements of the magnetic field were input to computer simulation of beam performance which showed that the "field quality" of both magnets were well within tolerances needed for collider operation. Both quench performance and field quality of these first two magnets indicate their suitability for installation in the RHIC tunnel.

The first phase of the contract between Brookhaven and Northrop Grumman calls for 30 dipoles and 10 quadrupoles to be delivered this year. Eventually, 373 dipoles and 432 quadrupoles will be produced by Northrop Grumman for RHIC. Installation in the tunnel is scheduled to begin in 1995.

The Grumman-Brookhaven collaboration began in June 1992, with the signing of the single largest RHIC construction contract. The process of technology transfer was begun when Northrop Grumman engineers and technicians participated in the assembly and test of the last two preproduction dipoles at Brookhaven.

Following that, many physicists, engineers, and technicians from the RHIC Magnet Division travelled regularly to Northrop Grumman to work with their counterparts in the development of tooling needed for magnet manufacture and for consultation during the assembly process. The RHIC magnets represent the first example within the United States of large scale industrial production of superconducting accelerator magnets.

The first dipole magnet for the RHIC heavy ion collider arrives at Brookhaven.

DUBNA-GRAN SASSO Satellite computer link

In April a 64 kbit/s computer communication link was set up between the Joint Institute for Nuclear Research (JINR), Dubna (Russia) and Gran Sasso (Italy) Laboratories via nearby ground satellite stations using the INTELSAT V satellite.

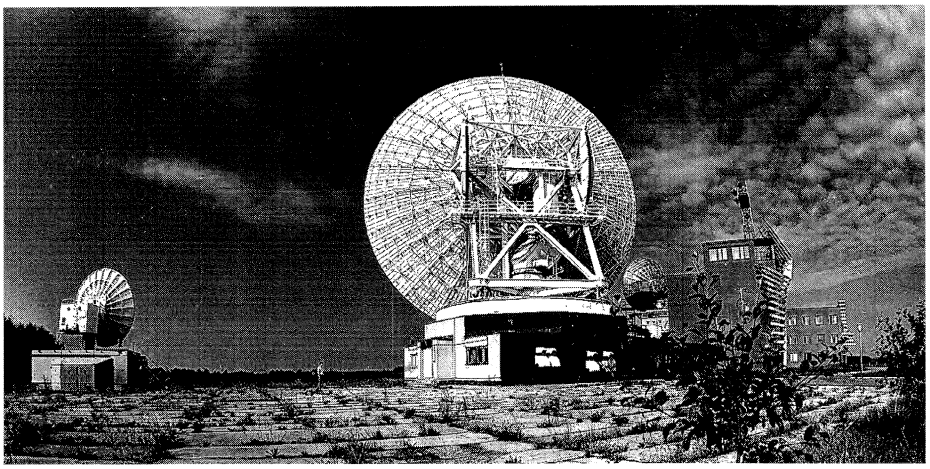
Previously the international community of Dubna's experimentalists and theorists (high energy physics, condensed matter physics, low energy nuclear and neutron physics, accelerator and applied nuclear physics) had no effective computer links with scientific centres worldwide.

Now Dubna physicists get a powerful computer line to the European HEPNET, including CERN as main node, important for effective participation in major experiments where JINR physicists are involved - Delphi, Obelix, and SMC as well as the emerging LHC collaborations. In the reverse direction, the link benefits the close scientific collaboration of Italian INFN groups not only with Dubna but also with Moscow, Novosibirsk, Serpukhov etc.

The establishment the line resulted from an agreement between former INFN President N. Cabibbo and JINR Director V. Kadyshevsky signed at the end of 1992.

Dubna is highly suitable as an entry point for Russia and other JINR member-states because of the nearby major Russian PTT ground satellite communication station. This

The satellite ground station located near Dubna, Russia, forms an integral part of a new computer link between the Joint Institute for Nuclear Research (JINR) and the Gran Sasso Laboratory in Italy.



is linked by powerful land line to Moscow and by satellite channels to Europe, the USA and East of Russia, with JINR's computer centre providing technical backup. In the framework of JINR's computer communication project and the INFN agreement, this link will be upgraded to 2 Mbit/sec. This link and others still being prepared will be available for other Russian and JINR member-state scientific centres.

Bookshelf

John R. Huizenga; "Cold Fusion: the Scientific Fiasco of the Century", Oxford University Press, 1993 (ISBN 019-8558171).

Review by Douglas R.O. Morrison

"Cold fusion is dead, isn't it?" is a question I am often asked. The reply is a strange one, "Yes, scientifically it is dead, but not from a media point of view or from funding"

In 1989 two electrochemists, Martin Fleischmann and Stanley Pons, claimed sustained nuclear fusion had been achieved in a test-tube with a palladium cathode and deuterium, observing excess heat, neutrons and tritium. A series of encouraging confirmations and successively greater excess heat claims were seized on by the world's media.

The US Government set up a panel of some 20 world-class scientists from several disciplines under John Huizenga, distinguished professor of Chemistry and Physics at the University of Rochester. They concluded that there was no present evidence for the discovery of a new nuclear process termed cold fusion. It might be thought that would end cold fusion, but for interesting reasons, it did not entirely.

John Huizenga has written a book describing the curious claims and evidence for cold fusion and has given an excellent explanation of the science involved. This was published as a hardback book of 236 pages, telling the story up to the end of June 1990. Again one might think it was the end of the cold fusion story. Now he has written about what happened in the next two years in a paperback book which contains an epilogue of 51 pages. If you thought the first year was extraordinary, the next two years described in the new edition were even more incredible!

In the main part of the book, the basic science is simply and clearly explained. The number of "miracles" required for each results or theory is described - a "miracle" is a gross violation of previous knowledge and experimental results such as energy conservation. Thus some theories are classified as "triple miracles".

It might be thought that people who claimed to have observed cold fusion would be proud to show their cells actually working, but a remarkable feature was that although the panel announced their visits to laboratories well in advance, they never managed to see a single cold fusion cell working!

In April and May 1989, in an electronic newsletter I compared cold fusion with other examples of Pathological Science such as N-rays. There was a great response from readers. This is one of the major themes of John Huizenga's book. He devotes a chapter to Pathological Science bringing it up to date with stories such as water with memory, as well as some remarkable cold fusion results. The final chapter lists 15 lessons on judging hypothesis, reproducibility, press conferences, publication, secrecy, lobbying, etc. The final conclusion is that "the scientific process works by exposing and correcting its own errors".

In the Epilogue, even more strange happenings are described such as the setting up of a company based on a theory that inside the deuteron, it is possible to create nucleon-antinucleon pairs and their annihilation then gives GeV of energy - a violation of energy conservation! Also at a university in Texas there was a claim to be able to transmute mercury into gold - the alchemists' dream!

Initially proponents insisted that the effect must be nuclear fusion since it happened with deuterium but not with normal hydrogen. However in the