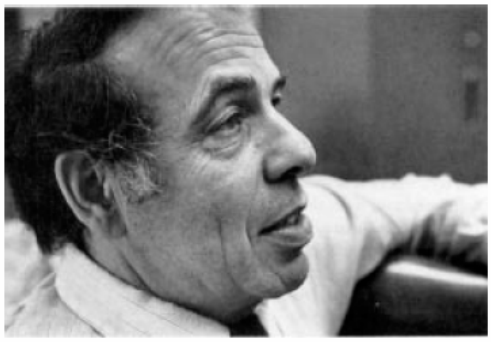
Director's Message

Bob Batterman



You will read in the next article a review of this past year's operations and accomplishments. During my sabbatical, Don Bilderback has ably and successfully run CHESS since last September. He will give details of our on-going development programs.

This past year has been an important one for the future of CHESS. As most of you know, CHESS operates in a mode parasitic to the High Energy Physics (HEP) operation of the Wilson Laboratory. Starting now and continuing over the next few years, the HEP program will undergo a number of significant upgrades. Because of its effect on CHESS, we thought it might be informative to have Karl Berkelman, the Wilson Lab director, give a summary of the HEP program in this issue.

At present, studying the b-quark fixes the energy of the CESR particle beams near 5 GeV. Future studies of b-quark interactions require much more data and has fueled the drive towards higher and higher currents in CESR. In principle, this directly benefits CHESS users since the x-ray flux increases linearly with current. With an ultimate goal of 500 mA per beam, over the next few years we hope to increase the delivered flux to experimental stations by a factor of 5.

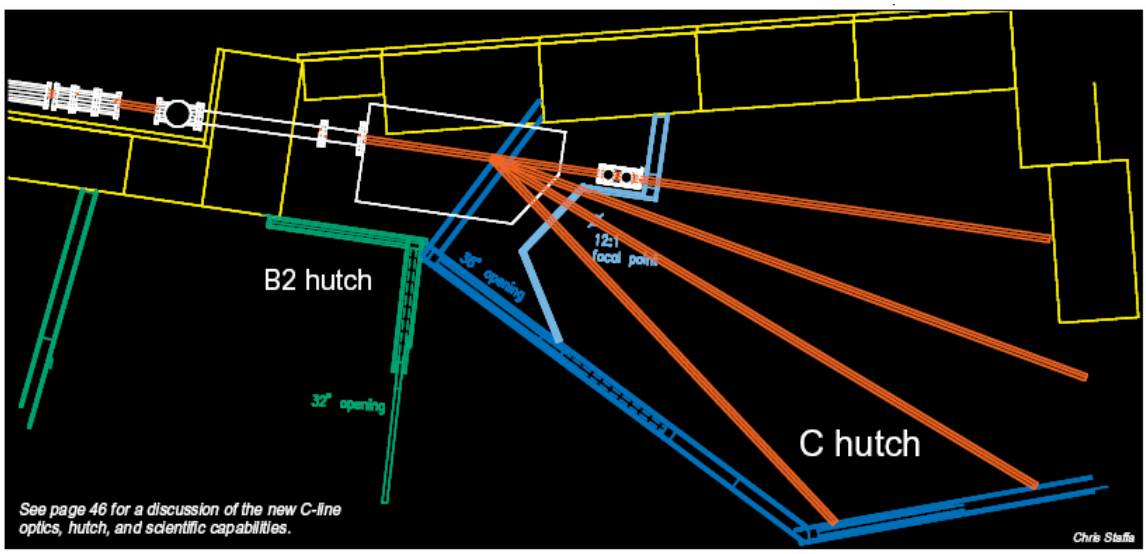
At these high currents both CESR and CHESS enter into uncharted areas in accelerator design and synchrotron x-ray heat-loads! Pivotal to these upgrades was the approval of $18M from the National Science Foundation (NSF). I am pleased to say that for the first time, in a formal way, CHESS's reputation for scientific output played a very significant role in attaining these additional funds for CESR.

Last fall, in a letter to NSF Director Neil Lane, Don Bilderback and I summarized the opportunities for CHESS this way:

"What is remarkable to us is that the CESR machine can be simultaneously effective for such a breadth of scientific research that stretches from studying the fundamental physics of the nature of the bottom quark to applied projects in geology, materials science, and medically important viruses. We, and the several hundred outside scientists who come from all over the nation and world each year to CHESS, are still amazed that all of this can be supported in an extremely cost effective manner at the Wilson Laboratory. The National Science Foundation, through its continued support of the Phase 3 upgrade plan, will continue to make CHESS and CESR programs even more viable in the future than they are today."

CHESS has always been a facility whose primary mission is to develop and provide experimental capabilities for use by the scientific community at large. All CHESS facilities have been designed, built and supported by CHESS and MacCHESS staff to fully respond to the experimental needs of visiting scientists. This direct support of the user community is quite distinct from other National Laboratories, and the general letters of commendation that we receive assure us that users appreciate the scientific productivity they achieve at CHESS.

We invite all the staff and users to help complete the upgrade project that is now underway and prepare experiments that can best utilize our unique x-ray source properties. Please feel free to call the experienced and accessible CHESS and MacCHESS staff members to find out how your future experiments can take best advantage of the improvements being made.



See page 46 for a discussion of the new C-line optics, hutch, and scientific capabilities.