

# Extraction of particles milestone in construction of A&M cyclotron

By Victoria Larroca  
Reporter

The superconducting cyclotron at the Cyclotron Institute at Texas A&M is one step closer to being fully operational after pulling the first external stream of subatomic particles from within it.

Dr. Jeff Bronson, a senior scientist at the Institute, said the extraction is a major milestone in expansion and construction that has been going on for more than five years.

"We are expecting to be able to begin experiments in mid-July — about two weeks from now," Bronson said. "Right now we are working on getting the beam out in a controlled fashion with the use of lenses and magnets."

Currently the energy level of the extracted beam is only 12 percent of the possible 2 billion electron volts, but after tuning the instrument, scientists hope to increase this to 50 percent and eventually achieve 100

percent extraction.

"At this point we are making minor improvements — changing variables and adjusting them to improve the quality of the beam and the percent of extraction," Bronson said.

A precalculated computer simulation is being used to show the scientists how the beam should behave and adjustments are made according to it.

The new facility has the most advanced heavy-ion particle beam capabilities available to any university-based research program in the nation and can work with ions ranging from hydrogen to uranium, Bronson said.

The actual experiments will begin after completion and modification of the approximately 200 foot long beam line — a complex array of magnets and lenses that aim the particles

at specific experimental targets.

Scientific advances are expected in the study of:

- Nuclear matter under extreme conditions.

- The limits of nuclear stability, including creation and discovery of new elements and their stabilities.

- Creation, study and application of new radioisotopic and ionic species.

- New methods for characterizing surfaces and interfaces of microscopic structures.

- Development of new types of instrumentation for ion production, acceleration and detection and neutron detection — detection systems include a "neutron ball" and a "recoil mass spectrometer."

The largest improvement of the new \$8 million computer-controlled cyclotron over the old one is the superconducting coils that replaced the water-cooled copper coils.

"The new K500 cyclotron requires one third of the overall power of the K147 and is 10 times more efficient," Bronson said.

The old cyclotron was left in place because taking it out would have been expensive and working around it is not a problem, Bronson said.

Previous accomplishments using the old cyclotron include:

- New cancer therapy techniques using fast neutrons (now a standard treatment), which has been used to treat more than 500 patients.

- New method for mass spectrometry of large, fragile biological molecules evolved from basic research in nuclear science (now an industrial product).

- Advanced trace element analysis and surface characterization through use of intense beams of low-energy highly ionized atoms.

- Improved design for a high resolution positron emission tomograph.

## What's Up

Thursday

**ATHEISTS, AGNOSTICS AND FREETHINKERS:** Will meet at 7 p.m. in 60448 Rudder Tower.

**AMNESTY INTERNATIONAL:** Will meet at 7 p.m. in 504 Rudder Tower. For more information call Jill Natowitz at 690-0909 or Steve Ridge at 268-3223.

**NARCOTICS ANONYMOUS:** Will meet in 026 MSC for a general discussion. For more information call the Center for Drug Prevention and Education at 845-0280.

**ADULT CHILDREN OF ALCOHOLICS:** Will meet at 6 p.m. in 145 MSC. For more information call the Center for Drug Prevention and Education at 845-0280. **TEXAS A&M RUGBY CLUB:** Will meet every Tuesday and Thursday at 8 p.m. at the Rugby Field across from Zachry. For more information call the Rugby House at 846-9772.

**CATHOLIC STUDENT ASSOCIATION:** Will meet at 8:30 p.m. in the Student Center at St. Mary's Catholic Church. The discussion group will be in Spanish. For more information call Rose Kennebrew at 846-5717.

Items for What's Up should be submitted to The Battalion, 216 Reed McDonald, no later than three business days before the desired run date. We only publish the name and phone number of the contact if you ask us to do so. What's Up is a Battalion service that lists non-profit events and activities. Submissions are on a first-come, first-served basis. There is no guarantee an entry will run. If you have questions, call the newsroom at 845-3315.

## Board OKs \$83.37 million in prison bonds

AUSTIN (AP) — The state Bond Review Board approved \$83.37 million in prison bonds Wednesday, two weeks after the issue was delayed because of a higher-than-expected construction bid for a 1,000-bed prison in Snyder.

The bonds are for 1,000-bed, medium-security prisons in Marlin and Woodville and a 2,250-bed maximum-security prison in Amarillo.

The Marlin and Woodville prisons, along with one in Dayton, are the same as the Snyder unit. Prison officials had asked for the delay in bond approval because if bids for the other three 1,000-bed prisons are as high as the Snyder bid, an additional \$16.3 million would be needed to build the four units.

The \$83.37 million issue was approved after Jim Lynaugh, prison director, said officials have found

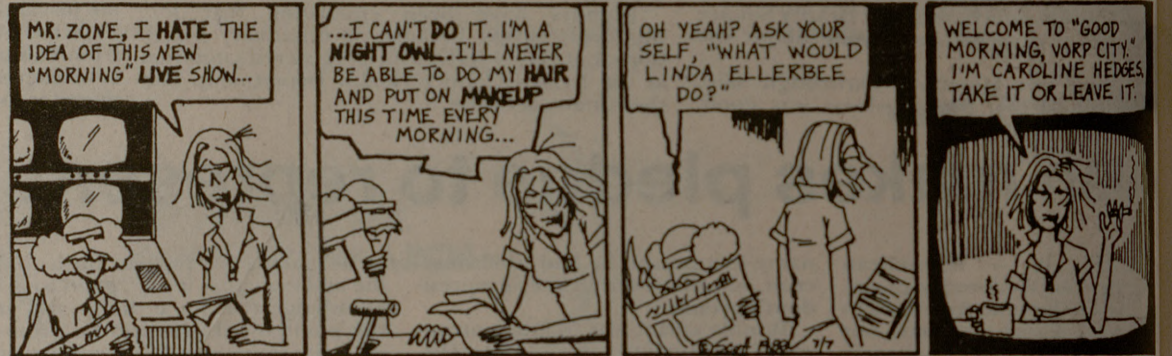
the additional money.

Of the funds, \$11.6 million would come from bonds that were authorized by the Legislature but that prison officials had thought they would not need to use. The additional bonds will be considered in the future by the board.

Of the rest, \$3.5 million is money that had been earmarked in 1983 for prison psychiatric facilities.

## Warped

by Scott McCuller



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