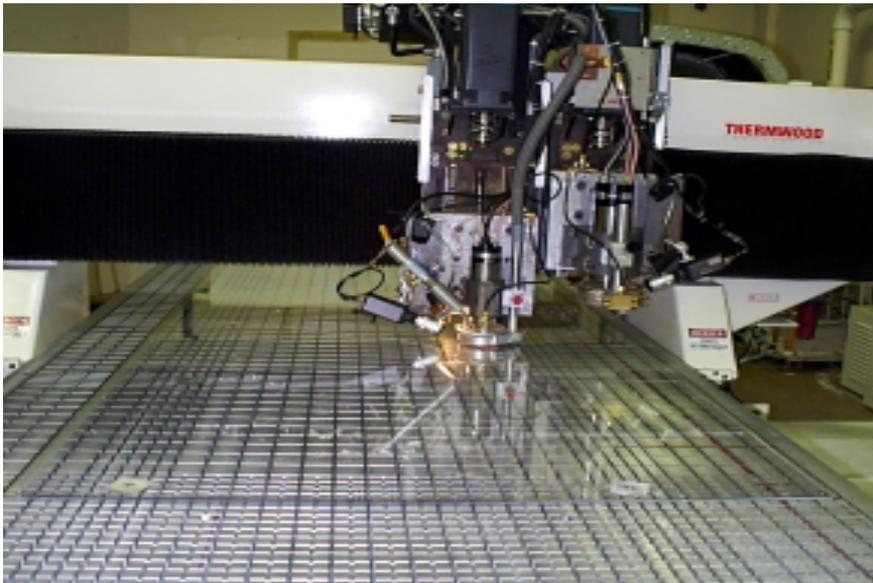


## U.S. CMS Project Progress- 1<sup>st</sup> Quarter FY02



**CMS Cathode Strip Chamber (CSC) production is in full swing at Fermilab, with the ~three-year production cycle over half-way complete. CSC chamber #72, out of 144 to be produced, has recently rolled off the production line at the Fermilab factory, run by Fermilab's Technical Division, shown above.**

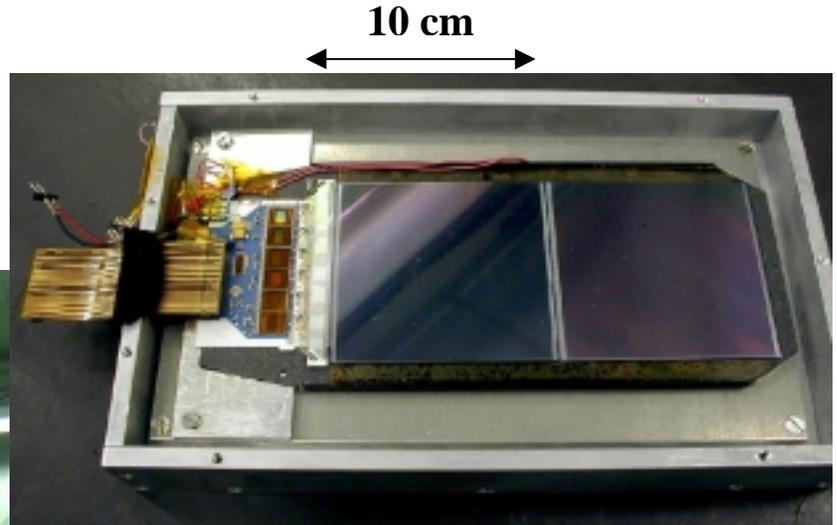


**Hadron Calorimeter (HCAL) scintillator production for the HCAL barrel wedges is over 95% complete. Scintillator tiles are shown at left in production at Fermilab Particle Physics Division (PPD) facilities. A PPD Thermwood router is shown machining grooves into the plastic scintillator tile.**

**The HCAL uses scintillator tiles and fibre readout to sample the energy deposition of hadrons in a large brass cylindrical absorber. The scintillation light is collected using wavelength shifting (WLS) fibre embedded into the grooves in the tile. Aspects of the optical readout system of these calorimeters is shown in photos on an adjacent page.**

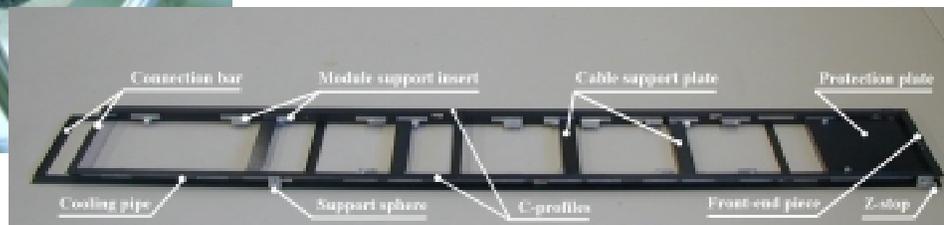
# U.S. CMS Project Progress- 1<sup>st</sup> Quarter FY02

CMS Silicon Strip Tracker (SST) modules, solid state sensors that track the positions of interacting particles, are assembled into the CMS Tracker Outer Barrel (TOB) assembly (TOB prototype shown below).



A module for the CMS Silicon Strip Tracker is shown above. The U.S. will produce 6,000 silicon modules for installation in the Silicon Tracker Outer Barrel sub-detector. Each module contains two silicon sensors. U.S. CMS Silicon module production facilities are currently in operation within Fermilab's Particle Physics Division.

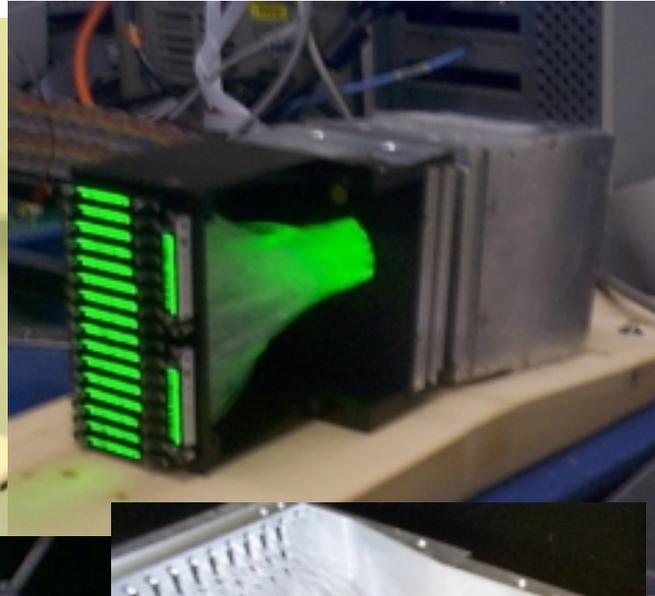
The University of California, Santa Barbara, is expanding existing facilities to provide additional production and testing capacity to relieve strain at Fermilab, where Run IIb silicon production



The TOB includes six layers of angled “slots”. Mechanical rod assemblies, onto which SST modules have been mounted, are installed into the TOB slots. Prototype mechanical rod assemblies are shown above.

U.S. CMS will produce all 6,000 SST modules, with readout electronics, to be installed onto 700 mechanical rods that will be assembled into the CMS TOB, a key element of the overall CMS Silicon detector subsystem.

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Through the “Quarknet” Education/Outreach program, U.S. CMS Physicists mentor and collaborate with physics teachers and students. Students, such as those pictured above at Notre Dame, can participate in research and development supporting frontier physics.

**Hadron Calorimeter (HCAL) Optical Decoder Unit (ODU) Production at the University of Notre Dame. ODU’s are components of the HCAL barrel region optical-electronic interface system. ODU quality control tests have been completed and show good results. ODU signal processing is tested using optical signals from lab sources, conveyed via ribbon cables of fiber optic waveguides. In the HCAL detector, optical signals from scintillator tiles will be carried to ODU and photodiode units comprising a specially designed “Readout Box”, which is nearing production at Fermilab.**