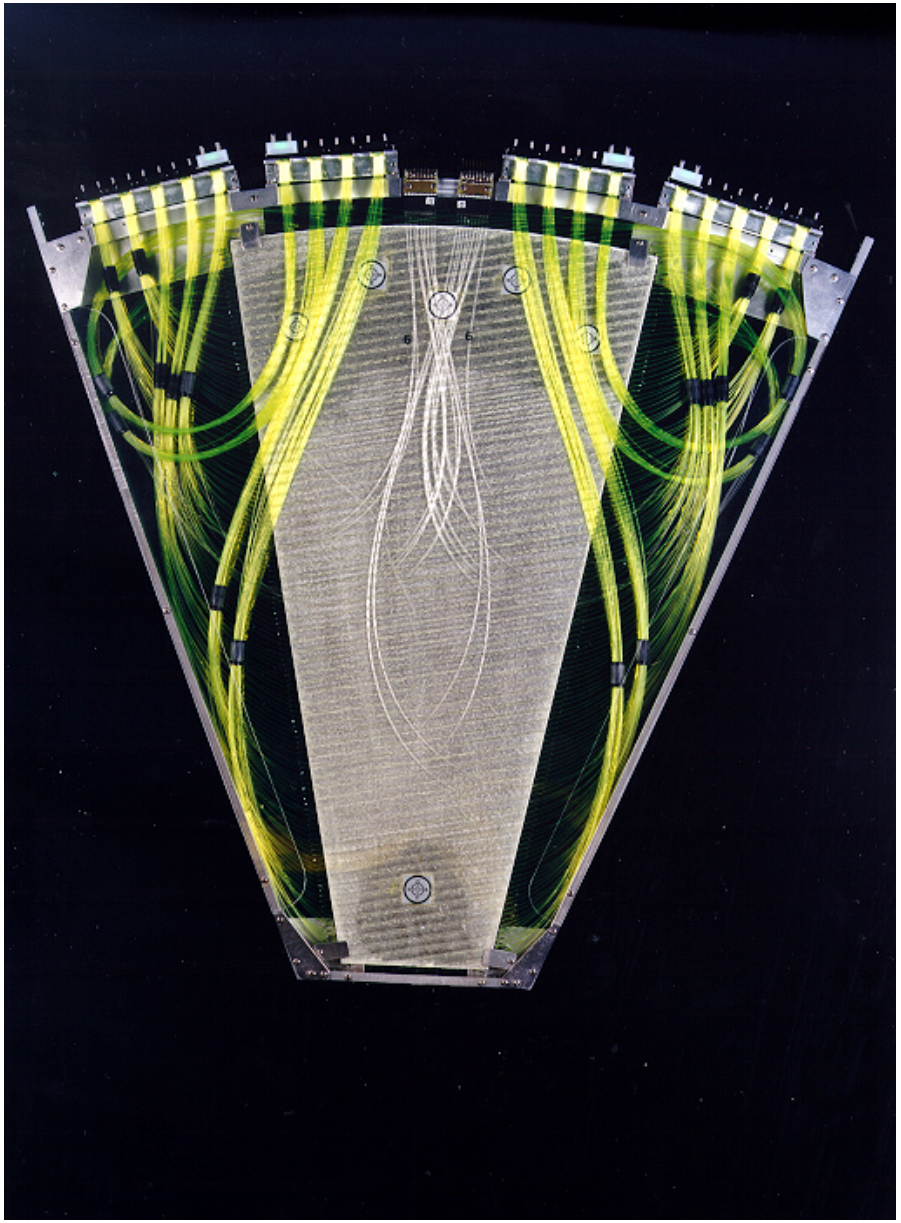

The Forward Preshower

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Forward Preshower wedge, a detector module from the DZero Experiment, now operating at Fermilab, built by a joint collaboration of representatives from Brookhaven National Laboratory, the State University of New York at Stony Brook, University of Illinois at Chicago, and Fermilab.

The Forward Preshower module is a particle tracking device used in the DZero Experiment at Fermilab's Tevatron particle accelerator. It contains arrays of plastic triangular scintillating strips in which green wavelength-shifting fibers are embedded. Light generated by particles traversing the scintillator is trapped in these fibers and transported at the black connectors to light sensitive detectors. The connectors have been diamond-polished to optimize the light yield from the device. The strips are assembled into trapezoidal sections that are bent three-dimensionally to fit the surface of a large sphere. Clear fibers disperse from the center of a module, delivering rich, blue LED light into the green fibers to monitor the system's performance. The module is fully assembled by-hand and has been designed to optimize its physics capabilities and to signify a clash between symmetry and spontaneity.