

Type: **Postar**

To study the feasibility of a shallow-depth neutrino detector, a Cosmic Muon Veto Detector (CMVD) is being built around the RPC detector stack at TIFR, Mumbai. The CMVD will use extruded plastic scintillators for muon detection and wavelength-shifting fibers coupled with silicon photomultipliers (SiPMs) for signal readout. These SiPMs require a very accurate, precise, and stable power supply for stable gain characteristics. We developed a bias voltage supply circuit that is capable of supplying $18 - 68V$ in $50mV$ steps and up to about $4mA$ current. It features digital voltage adjustment and stabilization, as well as current monitoring capabilities using external controllers such as microcontrollers or FPGAs. In addition to providing better flexibility, the external controller enables possibilities like temperature compensation. Designed to power multiple SiPMs, this circuit can be easily integrated with the front-end electronics of SiPMs.

Track Classification: Future experiments and detector development.