

A Second Long Pulse Modulator for TESLA using IGBTs^{*}, L. BARTELSON, K. BOURKLAND, C. JENSEN, Q. KERNS, H. PFEFFER, P. PRIETO, G. SAEWERT, D. WOLFF, Fermilab - A second and third modulator are being built at Fermilab to drive the klystrons for the TESLA Test Facility. These modulators are similar to one previously built at Fermilab¹ however there are two differences. First, the new modulators are designed for a 10 MW multi-beam klystron under design by Thomson. Second, IGBT switches are being used in place of GTO's. The modulator specifications are:

Pulse Width	Output Voltage	Output Current	Repetition Rate
1.4 ms (+/-0.5%)	110 kV	130 A	10 pps

The development of the series IGBT switch to replace the GTO switch is most significant challenge. IGBTs have the advantages of lower gate drive and shorter turn off delay time.

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1 A Long Pulse Modulator For Reduced Size And Cost, H Pfeffer et. al., Fourth European Particle Accelerator Conference, London, 1994.