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## 80kV Coaxial Feedthrough for CPP20 Pulse-Forming Line Kicker Applications

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A classical insulation problem occurring in many pulsed power and high voltage applications is to feed high-voltage-carrying conductors through a conductive wall at low (or even ground) potential. An ongoing development for a kicker application utilizes a pulse forming line (PFL) with a charging voltage of up to 80kV. Since both cable ends must be connected within two oil tanks, customized high voltage feedthroughs are required.

Due to impedance requirements, a special coaxial cable (CPP20) had been chosen for this application. In order to generate an output pulse of about 7kA, the PFL will be switched by a thyatron into a matched load. For insulation reasons, both the thyatron and load will be situated within grounded oil tanks.

A special high voltage coaxial feedthrough has been developed to feed the inner conductor of the CPP20 PFL into the oil tanks. The feedthrough is designed to either be fully immersed in oil or to tolerate a certain air distance to the oil level in the event of a vertical installation. Due to mechanical constraints, this feedthrough must be as short as possible.

Several high voltage DC and pulse tests have been performed to find a compromise between dimension constraints and insulation capabilities, in order to assess the design. This poster will outline the results of this study, and give details about the optimum design developed to achieve best performance.

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