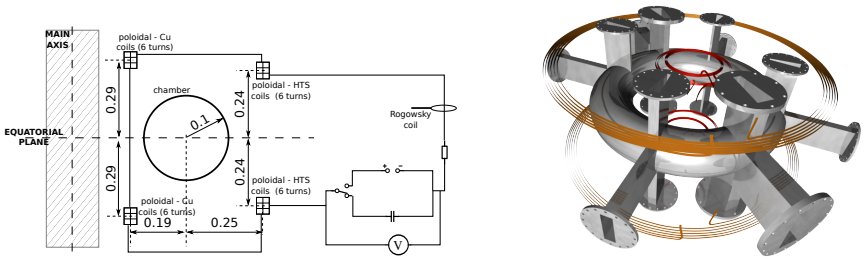

Figure 1: a) Circuit diagramme, b) Experimental Setup

In the experiments, two of the copper poloidal field (PF) coils on the Golem tokamak in Prague were replaced with a pair of liquid nitrogen cooled coils made of the 2nd generation HTS (RE)BCO tape material manufactured by SuperPower (US), see Fig 1. Two icy cryostats that contain coils each with 6 turns of HTS (Re)BCO tape. Liquid nitrogen was used to cool the coils to below the critical temperature at which HTS becomes superconducting.

The HTS tape was subject to a wide range of experiments in which its performance was tested under higher current loads and various current ramp-up speeds. No quench has been observed at DC currents up to 250A during bench tests. In the AC tests, current up to 1kA through the tape (6kA-turns through the coil) has been achieved with no degradation of the HTS performance afterwards and the rate of the current ramp in the HTS coil 0.6MA/s has been achieved.