

Supplementary material

Figure S1.

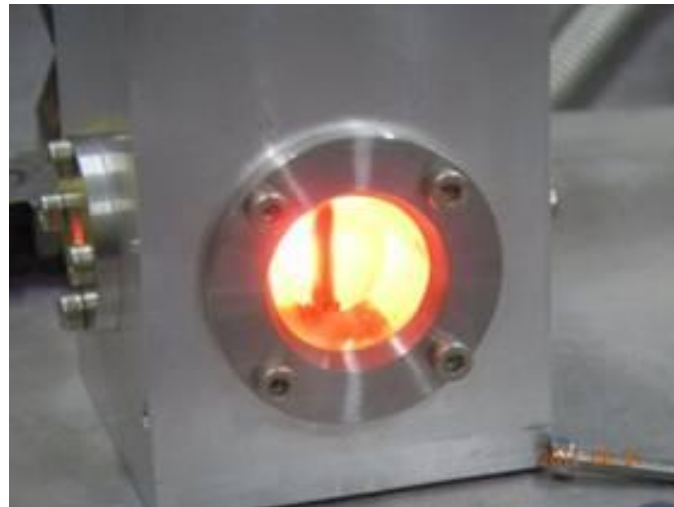


Figure S1 The effect of the heat shield on the cell system

Figure S2.

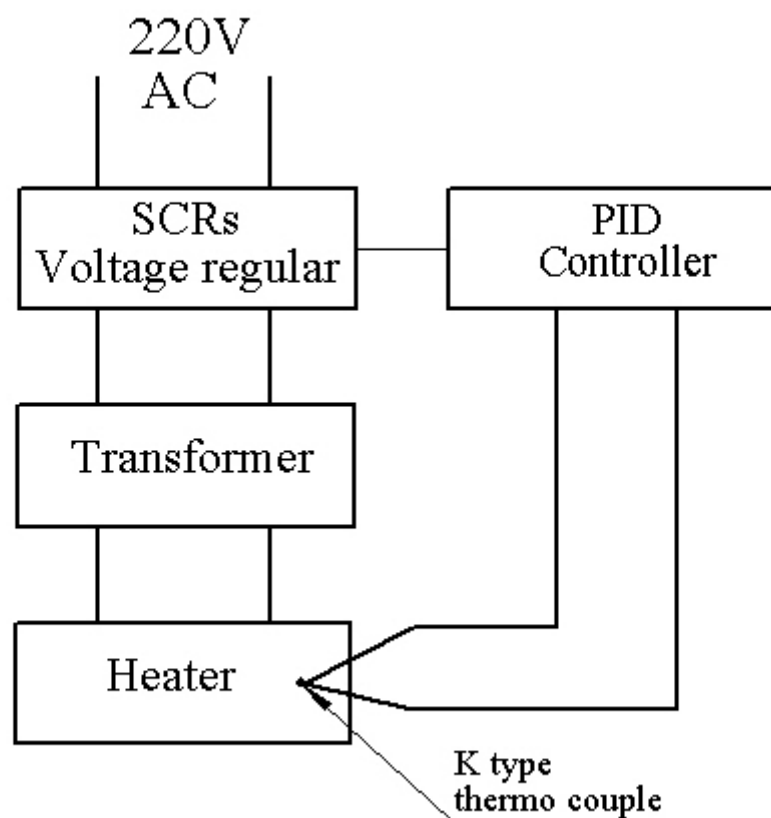


Figure S2 The temperature control system.

Temperature calibration method:

In order to calibrate the temperature difference between the sample center and the monitor spot on the tantalum heater, two thermocouples were used in the calibration experiment. One thermocouple was welded to the tantalum heater to monitor the temperature in the heating zone. The other was inserted in the center of the boron nitride pellet with 1mm thickness and 10 mm in diameter to show the actual temperature of the sample. At each set temperature point, the temperatures of the thermocouples are recorded at the same time. The function $R = (T_t - T_s) / T_t$ was used to determine the difference between sample and tantalum sheet. Here, the temperature of sample and tantalum sheet was donated as T_s , T_t respectively. The value of R is lower than 1% from RT room temperature to 1000K, and this value is lower than 4% when the temperature range is between 1000K and 1273K. In higher temperature, the thermal radiation diffusing from the hot sample enlarges that temperature difference.