This experiment was aimed to study the region of the phase diagram of carbon dioxide extending between 30 and 100 GPa at high temperatures using the diamond anvil cell coupled to resistive heating in order to clarify the open issues present in literature. In particular the plan was to study the phase VI which appears at about 60 GPa upon compression at 600 K, starting from the molecular phase II as reported in literature.

We performed a careful study measuring the diffraction pattern along an isothermal compression at 600 K, following the same pressure and temperature path as reported in literature. We prepared a phase II sample at 600 K and we performed an isothermal compression at 600 K up to 60 GPa. We did not observe the phase VI, while on the contrary we produced the “carbonia”, which is the non molecular amorphous carbon dioxide form which we discovered many years ago.