Pressure Effect on Superconductivity of Rhenium KAZUSHI TAKAHAMA, TAKAHIRO MATSUOKA, KATSUYA SHIMIZU, KYOKUGEN, Osaka Univ., Japan — Rhenium metal is often used as a gasket material in high pressure experiments using DACs. It has been known that Re become a superconductor with superconducting transition temperature $T_c$ of 1.6-2.8 K at ambient pressure [1]. Although, pressure dependence of $T_c$, have not been studied in detail over 2 GPa [1]. It’s important to study pressure effect on $T_c$ of Re in two points. First is that hard simple elements Os, W, Ir and Re are known to superconduct with very low $T_c$s at ambient pressure, but high pressure properties of their $T_c$ have not been well studies so far. Another point is a technical aspect. In the studies of superconductivity under high pressures, we employ electrical resistance and magnetic susceptibility measurements to detect superconductivity. Superconducting Re-gasket below 4 K masks superconducting signal of sample in magnetic susceptibility measurements. In electrical resistance measurements, if the electric circuit has a short with Re-gasket, superconducting transition comes to be mixed in measured data. We present pressure dependence of $T_c$ of rhenium up to 65 GPa measured using a DAC. We observed $T_c$ increases in pressure range of 0-10 GPa and it gradually decreased with applied pressure.