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Stable External Heating of Diamond Anvil Cell: Examples and Issues[1] HYUNCHAE CYNN, ZSOLT JENEI, Lawrence Livermore National Laboratory, JESSE SMITH, CHANGYONG PARK, Geophysical Laboratory, Carnegie Institute, Washington D.C., HANS-PETER LIERMANN, DESY, PETRA-III, WILLIAM EVANS, Lawrence Livermore National Laboratory — While laser heating has been applied to successfully study materials at extreme conditions, external heating also has been extensively developed and applied for material studies at moderate temperature below ∼1000 K at high pressures. We have tested various external heating methods to accomplish stable heating at high pressures. Experimental measurements using two mini coil heaters at 900 K and 580 K to 100 GPa and 185 GPa, respectively and isobaric heating at 95 GPa up to 1000 K will be presented. New measurements using a graphite gasket heater will be compared along with internal heating methods. We will present comparison among different external heating methods and different temperature measurements using various examples. HP-CAT is supported by CIW, CDAC, UNLV, and LLNL through funding from DOE-NNSA, DOE-BES, and NSF. The APS is supported by DOE-BES under Contract No. DE-AC02-06CH11357.

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