



Figure 2: A schematic of the thermal CVD system that members of our lab are assembling.

that, when open, allowed both the most gas flow and large area samples to pass through. In some CVD systems, turbo pumps are installed at an angle to the main system, and, therefore, molecules must bounce off the system wall at the correct angle in order to enter the pump. We installed our pump with line-of-sight of the growth chamber.

The system was computer-controlled using LabView programs in order to give higher accuracy and repeatability in controlling growth conditions; we programmed control gas flow, system pressure, valve positions, and the temperature at which the system was being operated. The programs were designed so that a user could specify times to change the growth conditions.

The system had a four-inch quartz tube instead of a one-inch quartz tube (as our other thermal CVD systems have) so that larger samples could be inserted. By using a larger four-inch tube, we would be able to insert three-inch wafers.

By assembling this CVD system on our own, we avoided the high cost of ordering a commercial system.

Future Work:

We have almost finished assembly, but have not yet grown a graphene sample. I look forward to hearing from the team about whether or not they get high quality graphene over large areas in the future.

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