Reactor Design for Atomic Layer Deposition on Adjacent Substrates

Engstrom Group
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The goal of this research project is to design and model a probe that allows for flow of gas for chemical vapor deposition (CVD) in a horizontal band across two silicon samples while minimizing diffusion of gas outside the probe area. AutoCAD will be used to create the shape and design of the probe, then COMSOL Multiphysics will be used to model gas flow and mass transport of chemical species. Previous work has been done with a concentric prove using two dimensional modeling. Due to the need for CVD to be in a horizontal band rather than a circle, a two dimensional model will not be sufficient and a three dimensional model will need to be created.

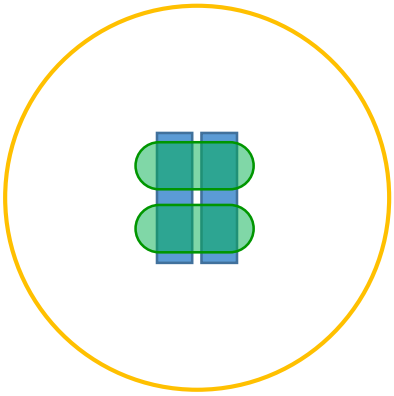

Figure 1. Sample plate holder. The orange circle represents the edge of the sample holder, the blue rectangles represent the sample plates, and the green obround shapes represent the intended reaction zone of the new probe.