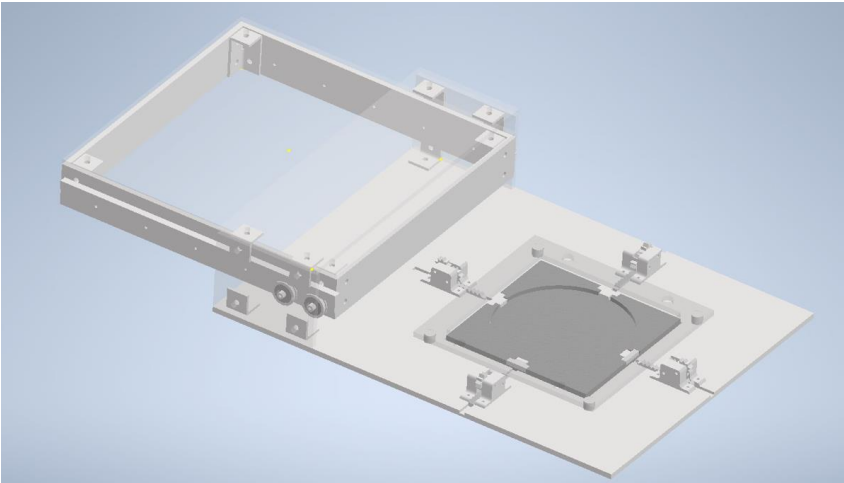


# Creating a Lithography Exposure System

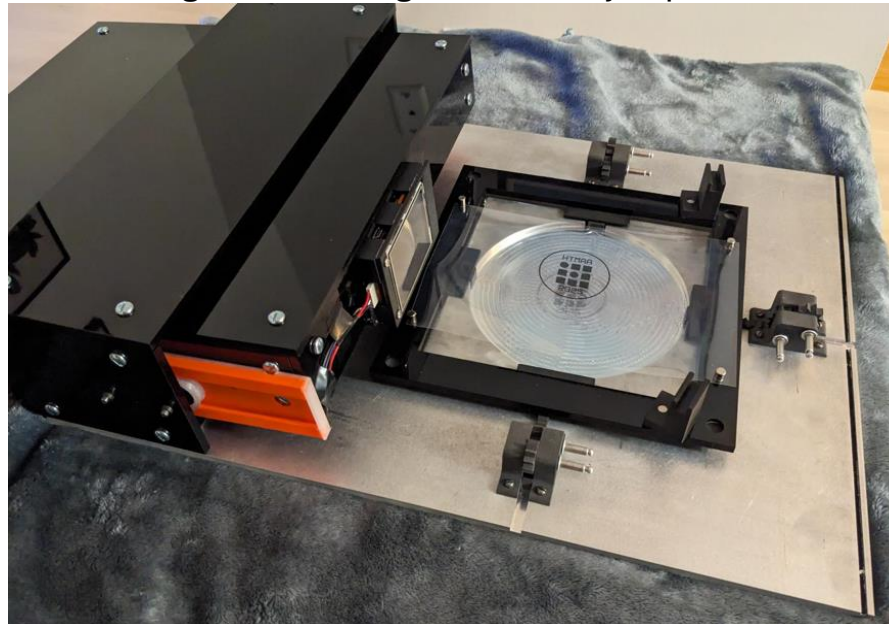
-Tyler Hill, HTMAA 2025



- The base is a large aluminum plate with features CNC-ed into the face
- Acrylic is used as the main structural material
- The mask is held in place by magnets and is printed on transparent films
- A XIAO board and screen module is positioned on the front of the tool for controlling exposure settings and reading out current job parameters



- Lithography uses light to transfer a pattern from a mask to a particularly sensitive material. This technique is used in semiconductors to create circuits down to 7nm line widths
- My version is designed with both UV and white LEDs to support different photo materials
- The light box is retractable to account for a possible mask-alignment microscope
- The mask is suspended above a removable chuck to accommodate different sized wafers
- Side gears pin the wafer chuck in place



- I successfully patterned wafers using my tool! And I found that surprisingly, I am at the limit of masks my printer can make not my exposure device
- Future work on the project will be creating the additional tooling needed to completely run a photolithography process outside a cleanroom (ex: a spin coater)