1. Building a downsized version of the LASER to collect experimental data for simulations.
2. The overall achievement and mission for ALMA are to prove that you can use a Fiber Laser (FBL) for mining water ice in the vacuum of space. This includes ice on the moon, NEOs, and asteroids in the asteroid and Kuiper belt (which mainly consist of C-types and comets). The bulk of the project will be theoretical, using simulations, but we will require a downscaled version to collect data. This is because we do not want to assume anything; we want this to be as accurate as possible. The reasoning behind using an FBL and not an nd:YAG or carbon dioxide gas LASER is due to the efficiency and accessibility the FBL has. The FBL uses less electricity and therefore more cost-efficient, has a higher amplification coefficient meaning more power, uses a simpler design than both and is more compact, and is very reliable essentially maintenance-free.
3. The students involved are going to learn about LASERs, including the physics and engineering. We will learn to operate a Fiber LASER and how it works. This will inevitably teach everyone how to work in a high-stress environment and will give experience for the workforce.
   1. COST: