

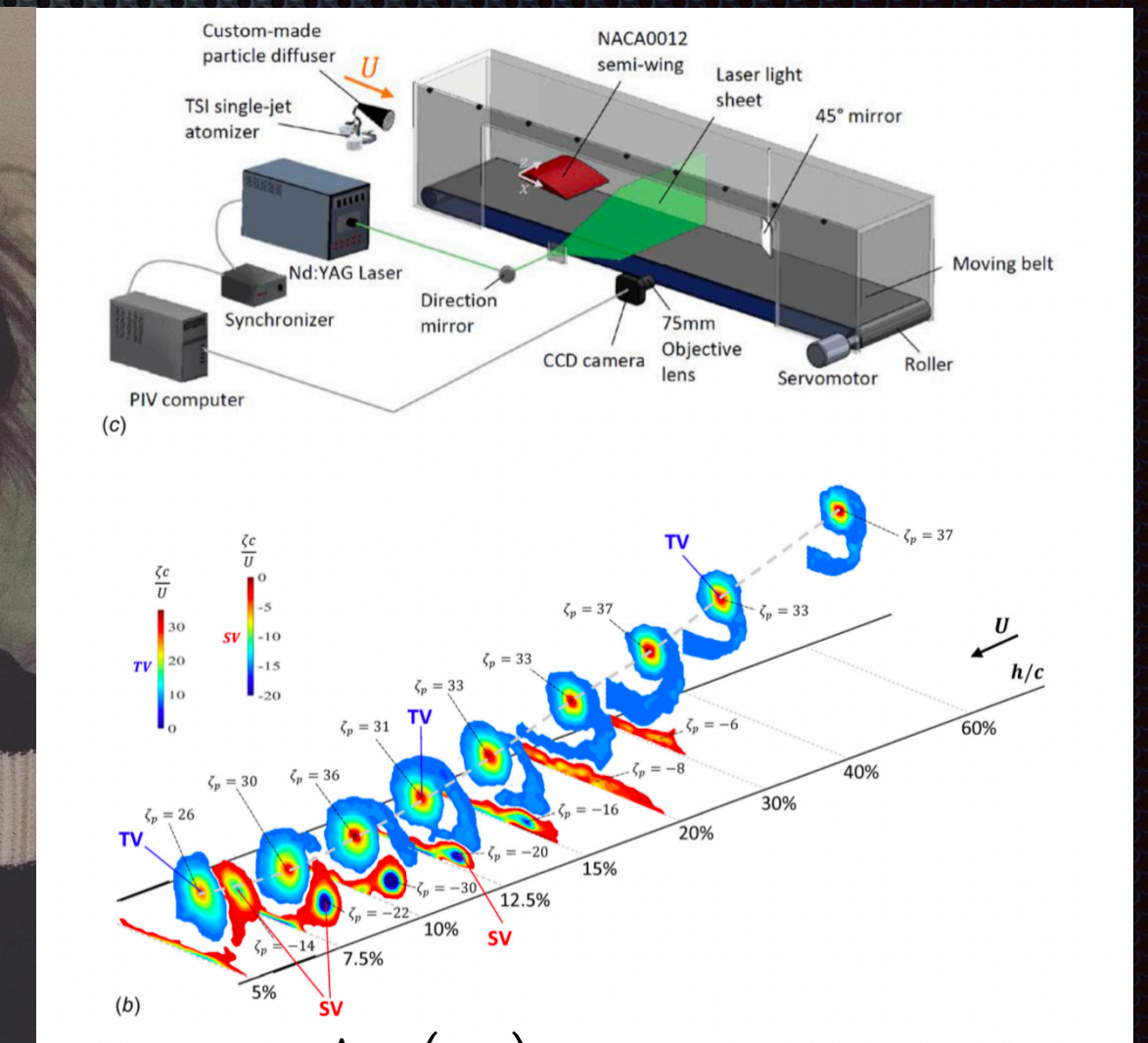
STEADY workshop: Intro to CAD

By Anan Lu @ TSI, McGill

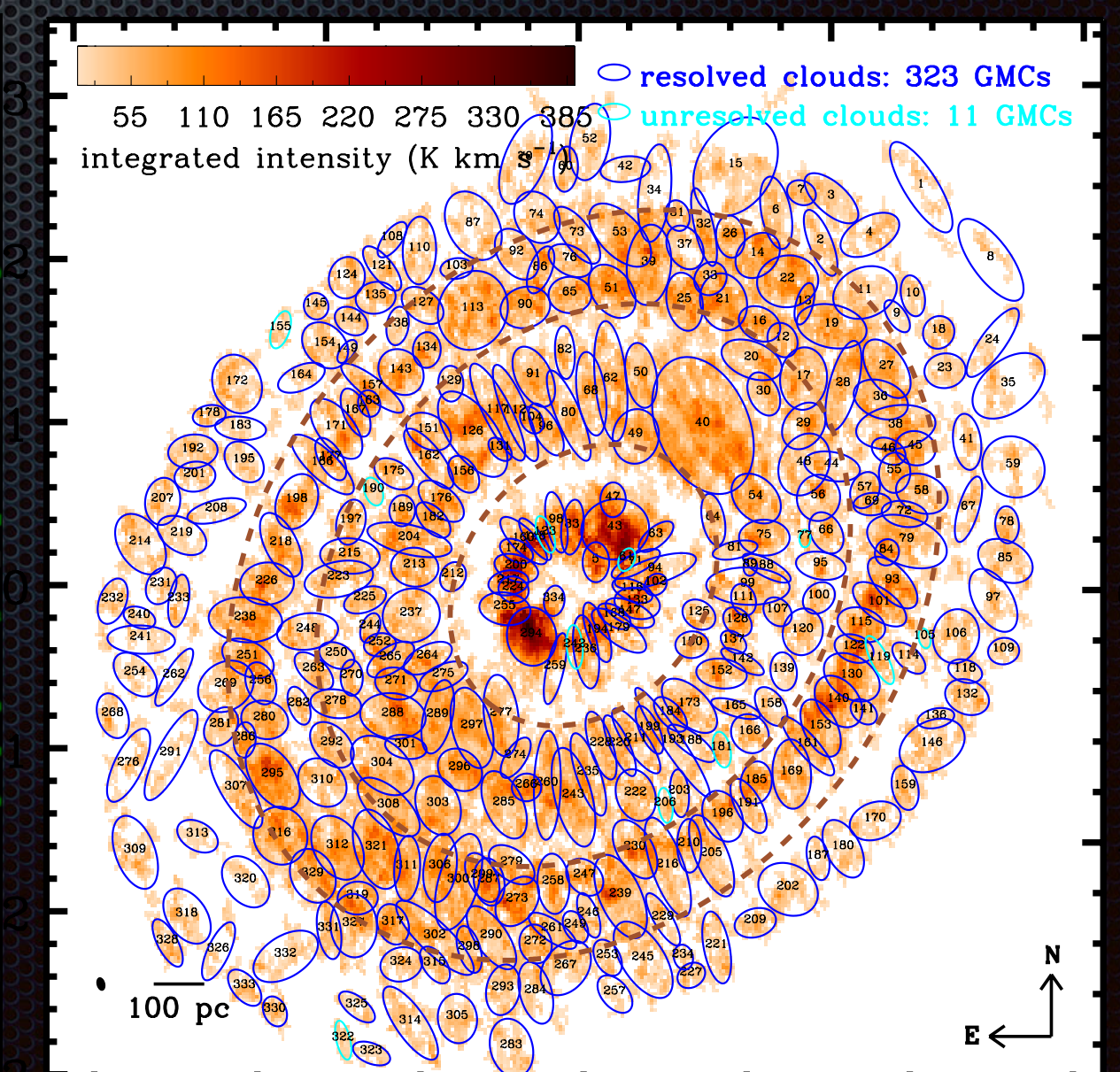
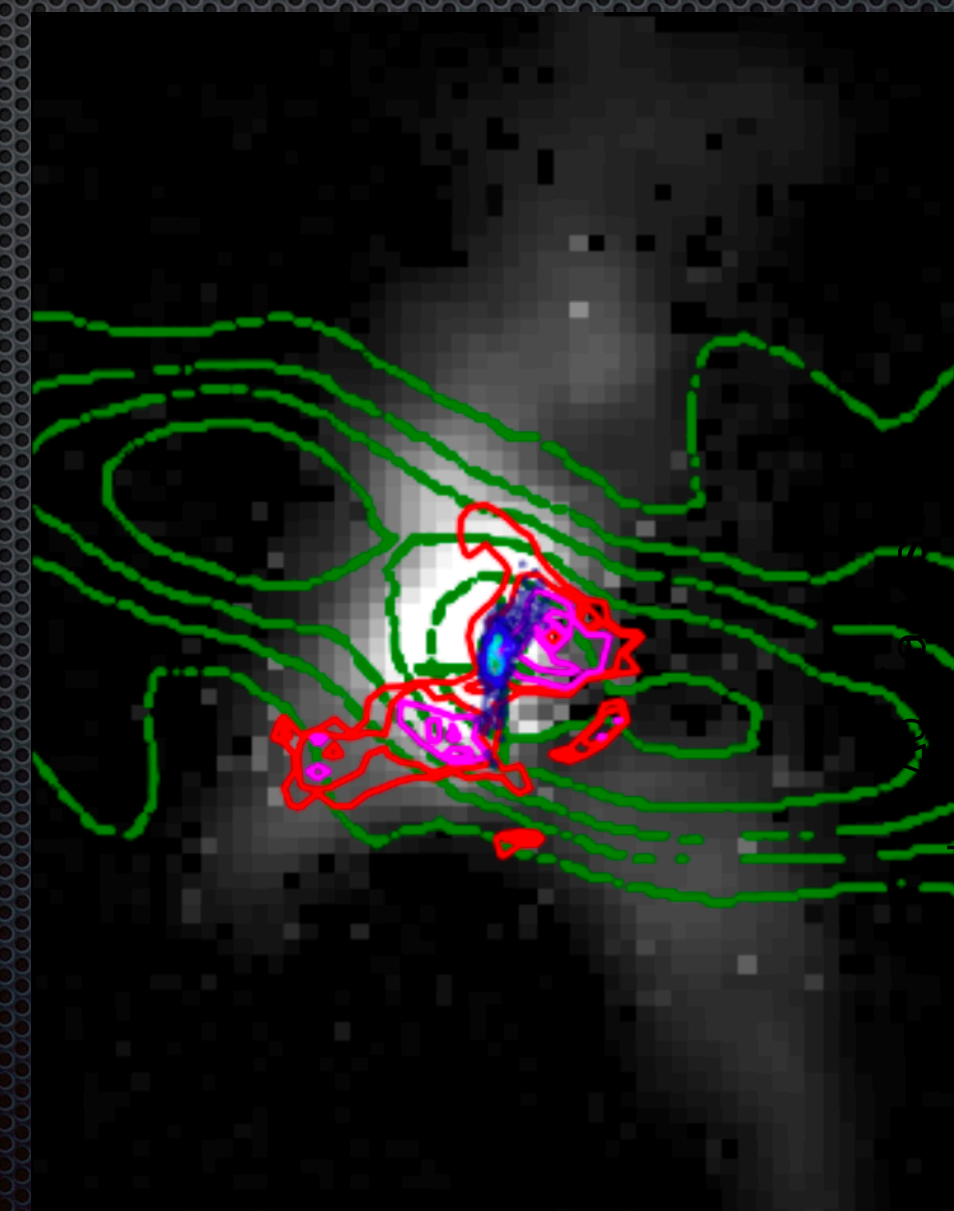
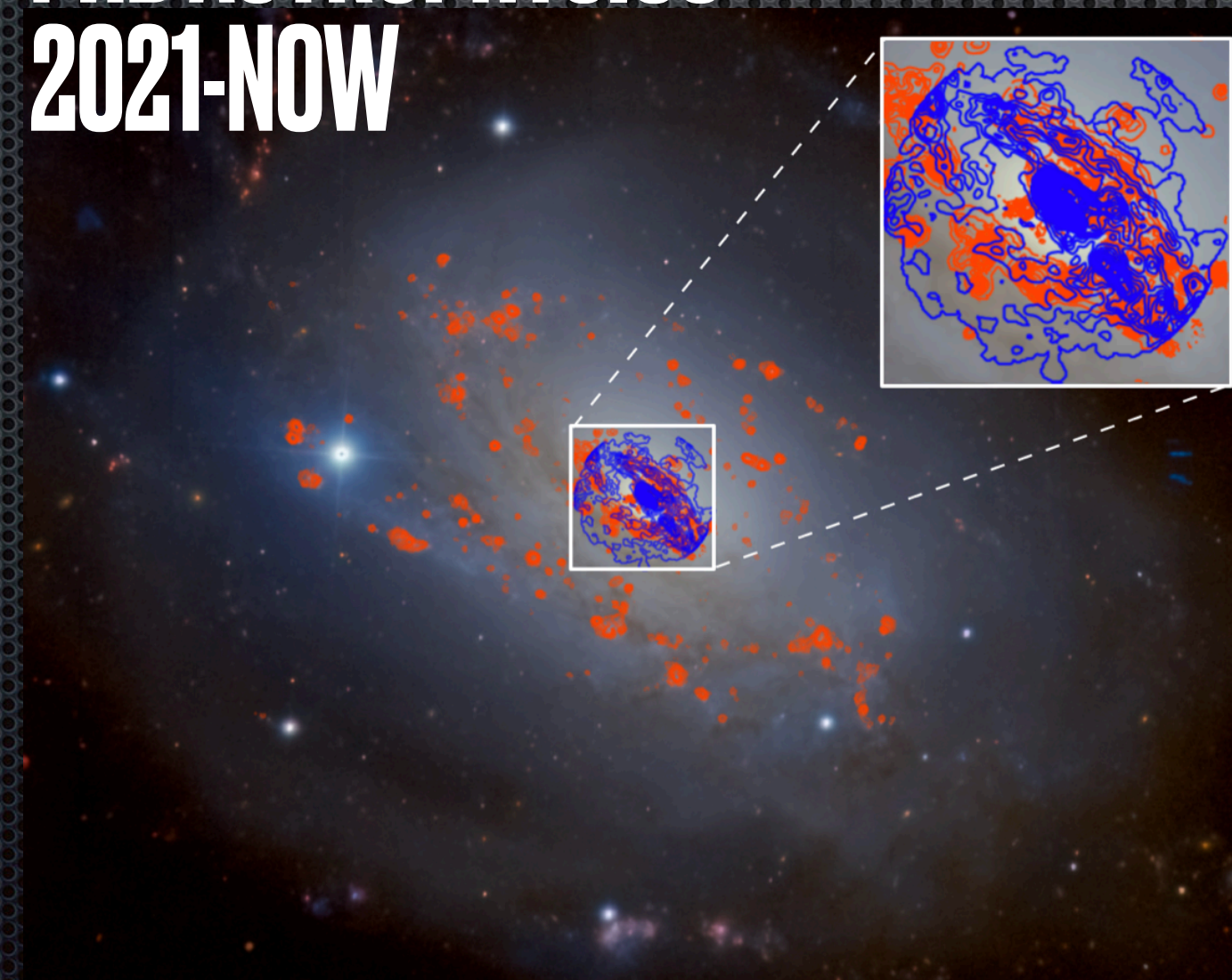
2023, May 18

1. MYSELF

MASTER'S MECH. ENG.
2018-2020



PHD ASTROPHYSICS 2021-NOW

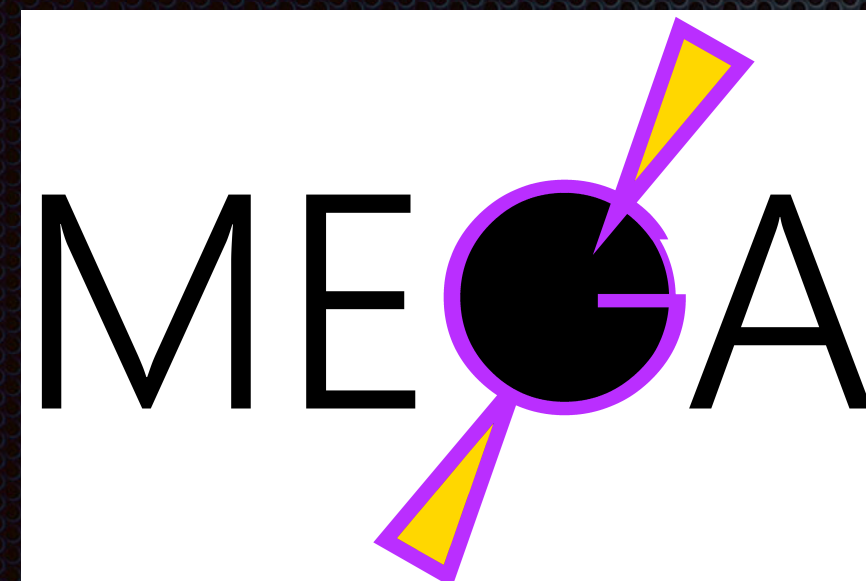


**BACHELOR'S
MECH. ENG.
2011-2016**



MASTER'S ASTROPHYSICS

2020-2021



Outline

- Design tips
- Problem solving: sketch
- Fusion 360 demo
- Practice!





















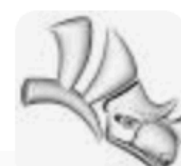


What's CAD?

Canadian Astronomy Database

Computer Aided Design

Computer Aided Design Software

From sources across the web

 AutoCAD Proprietary software	 FreeCAD GNU Lesser General Public ...	 Fusion 360 Proprietary software
 Onshape proprietary license	 SOLIDWORKS Proprietary software	 Solid Edge Proprietary software
 Creo Elements/Direct Mo... Proprietary software	 DraftSight Proprietary software	 LibreCAD GNU General Public License
 Autodesk Inventor Proprietary software	 BricsCAD Proprietary software	 MicroStation Proprietary software
 OpenSCAD GNU General Public License	 TurboCAD Proprietary software	 QCAD GNU General Public License
 Siemens NX Proprietary software	 CATIA Proprietary software	 IntelliCAD Proprietary software
 Rhinoceros 3D Proprietary software	 nanoCAD Freeware	 ZWCAD Proprietary software

- ✦ Do you need CAD for your research?
- ✦ Do you need CAD for fun?

BnL



HOME

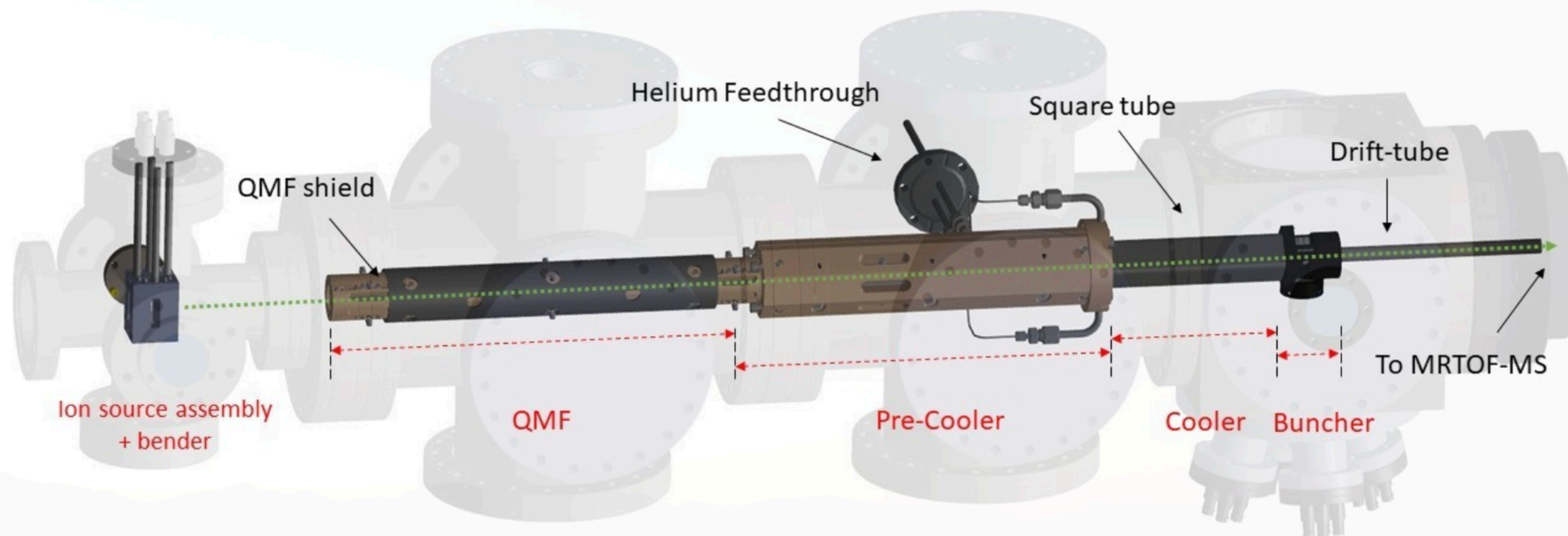
RESEARCH

GROUP

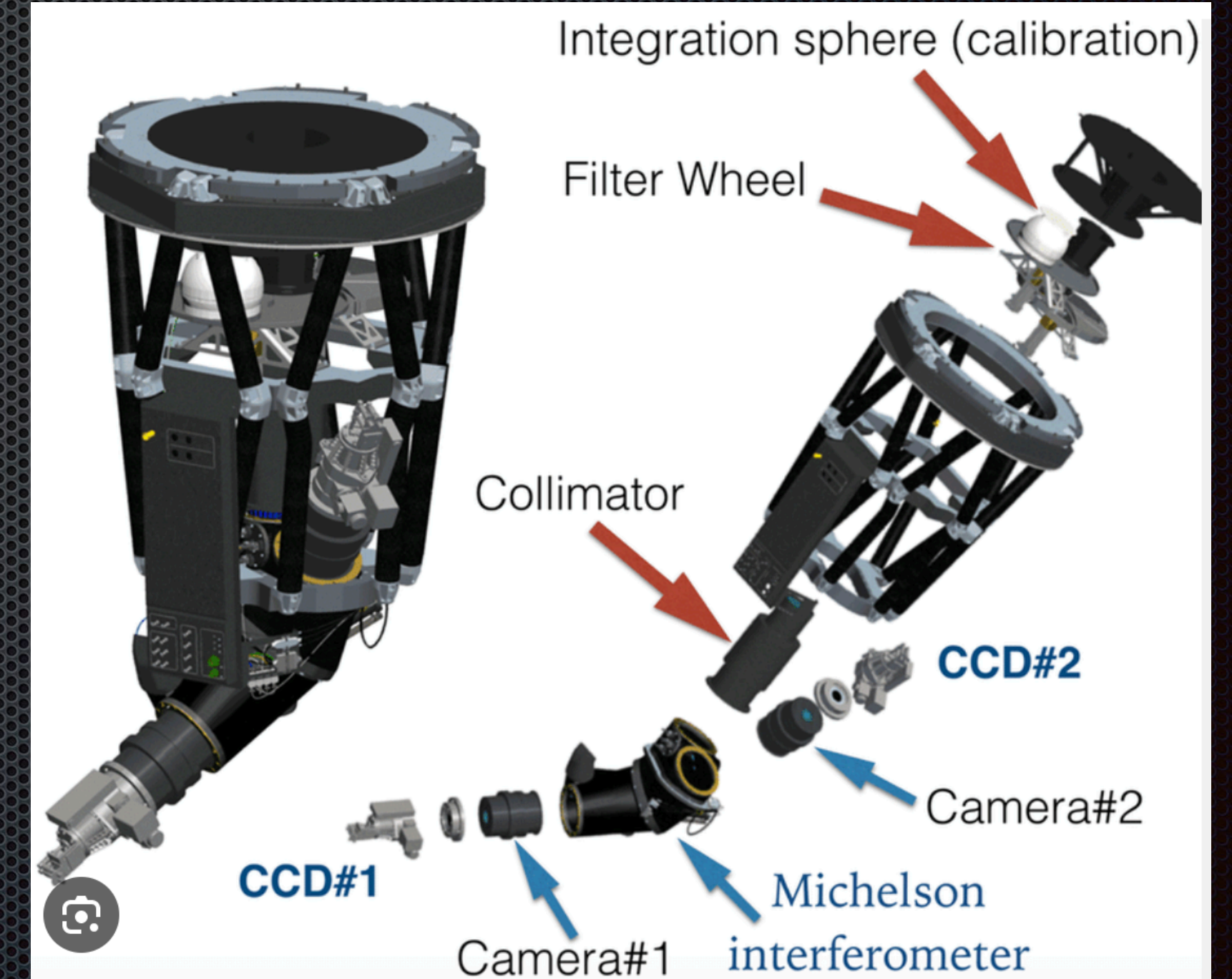
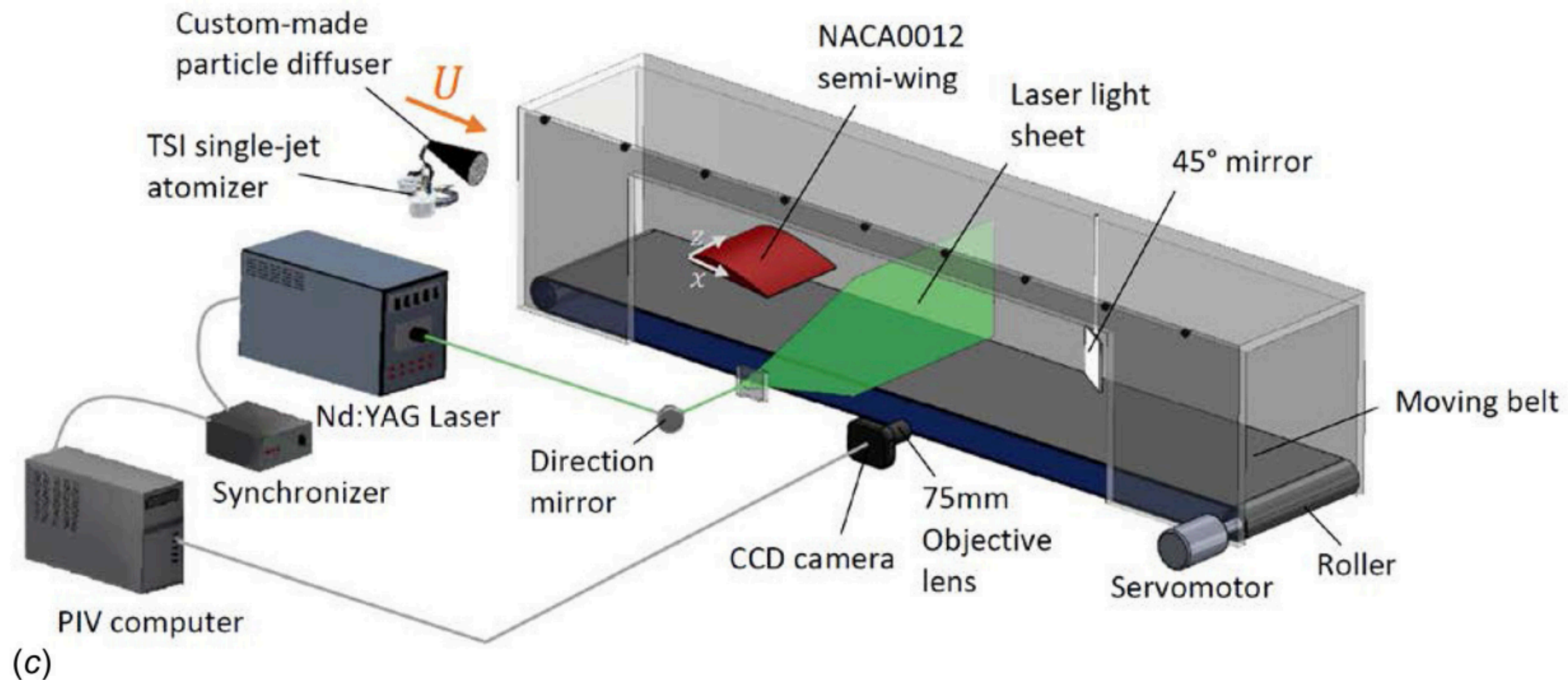
PUBLICATIONS

LINKS

POSTERS



- ✦ Do you need CAD for your research?
- ✦ Do you need CAD for fun?



Efficiency
Environment
Economical

Efficiency

- **Your design must meet your need**

It must be able to do the job you want it to do.

- **Minimize manufacturing operations**

Find out about the operations available in machine shops

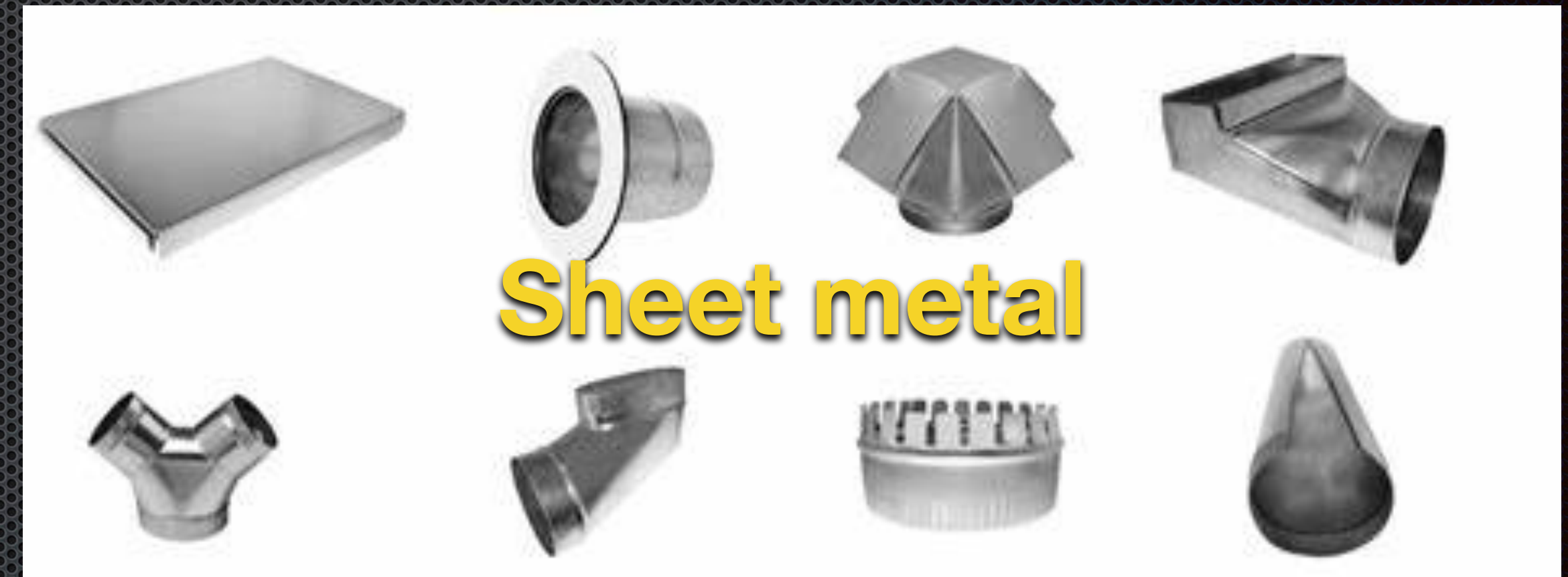
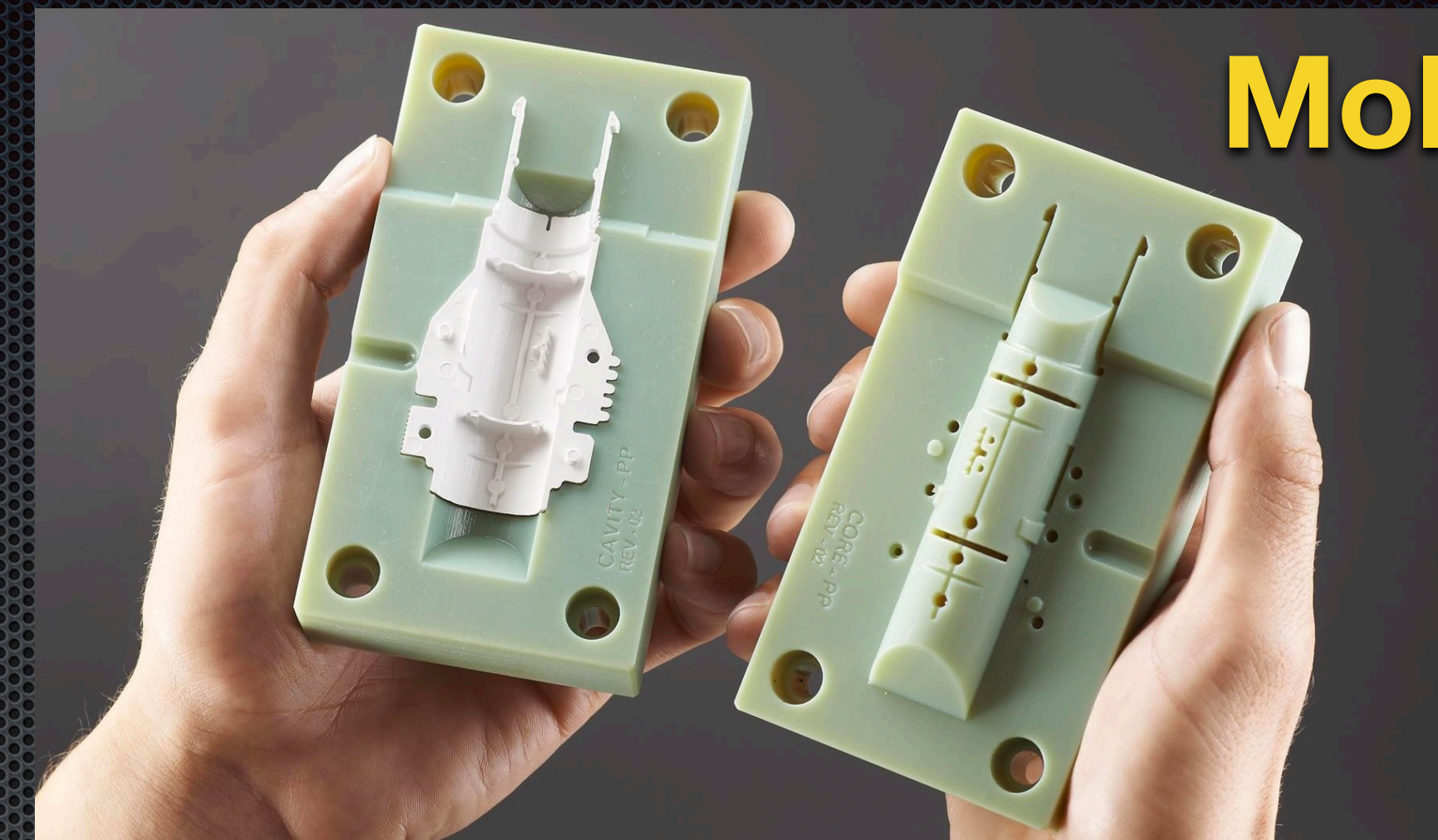
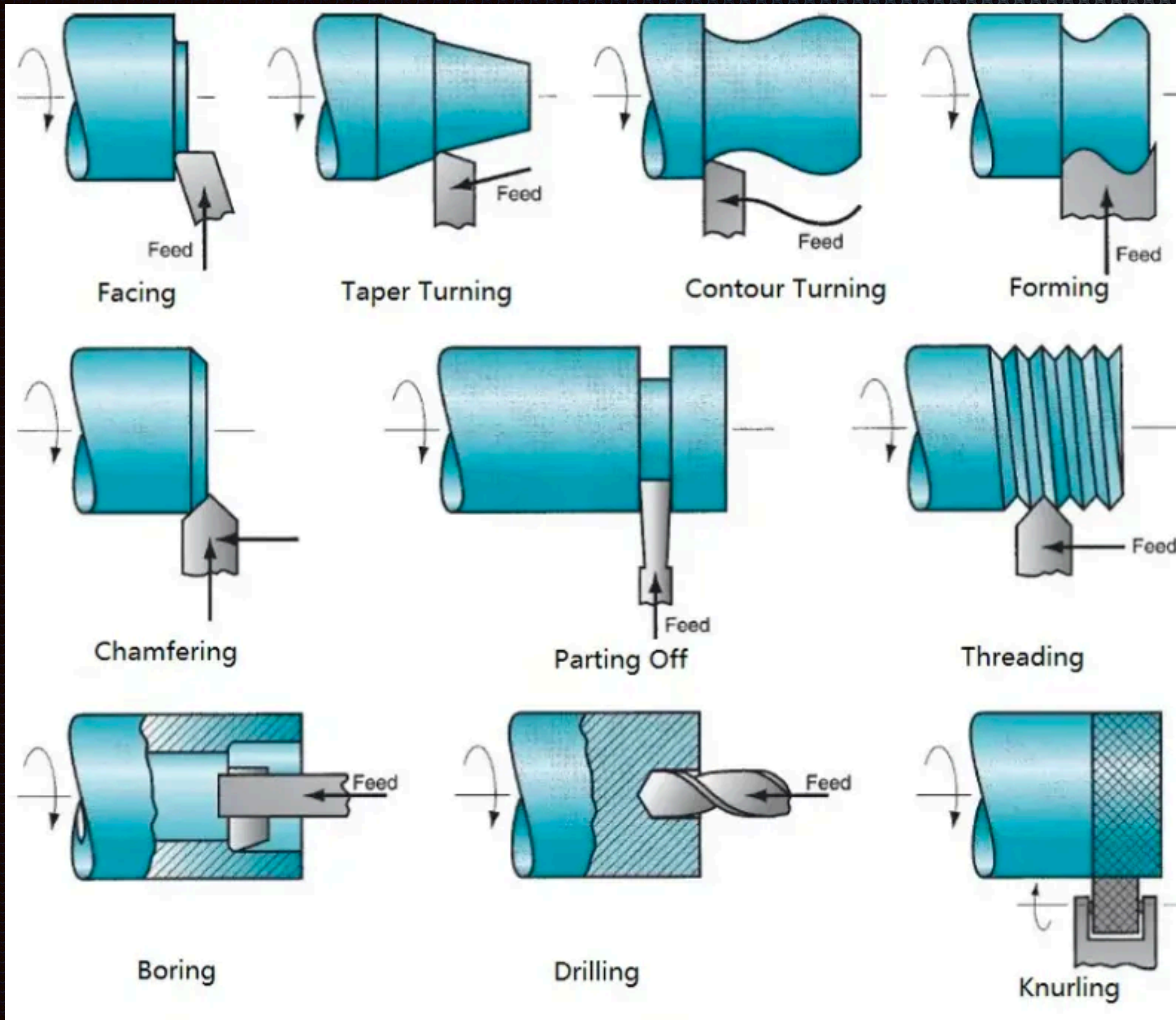
- **Plan very carefully, so that you don't end up with a scrap piece**

Take measurements carefully

CAD model and assembly

Prototypes, 3D printing?

Subtractive manufacturing



Additive Manufacturing

Stay tuned for
3D printing workshop!



Environment

- **Working environment of the part**

Pressure, temperature, seal, ventilation

- **Tolerance**

- **Material**

Simulation?

- **Recycle**

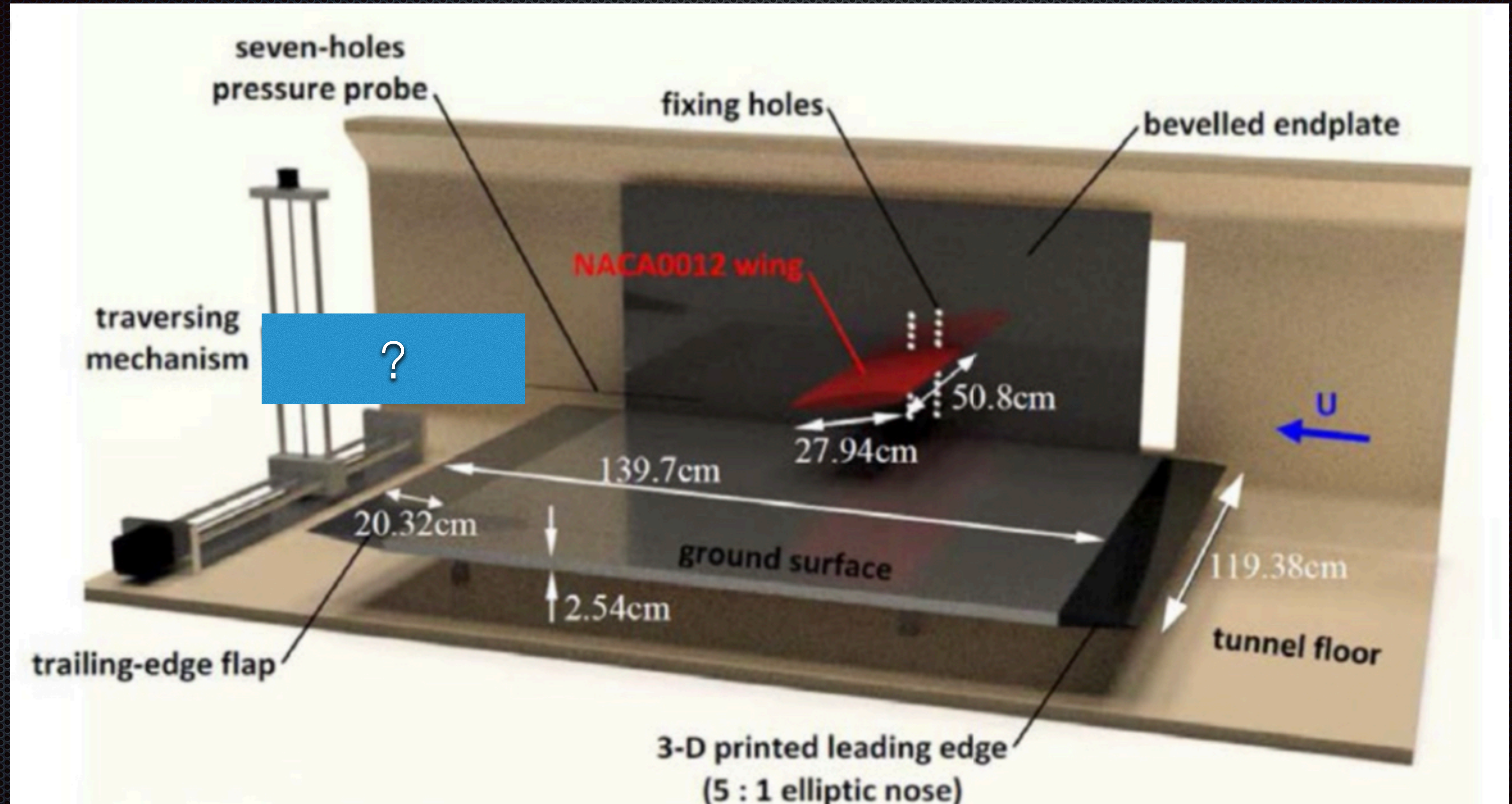
Economical

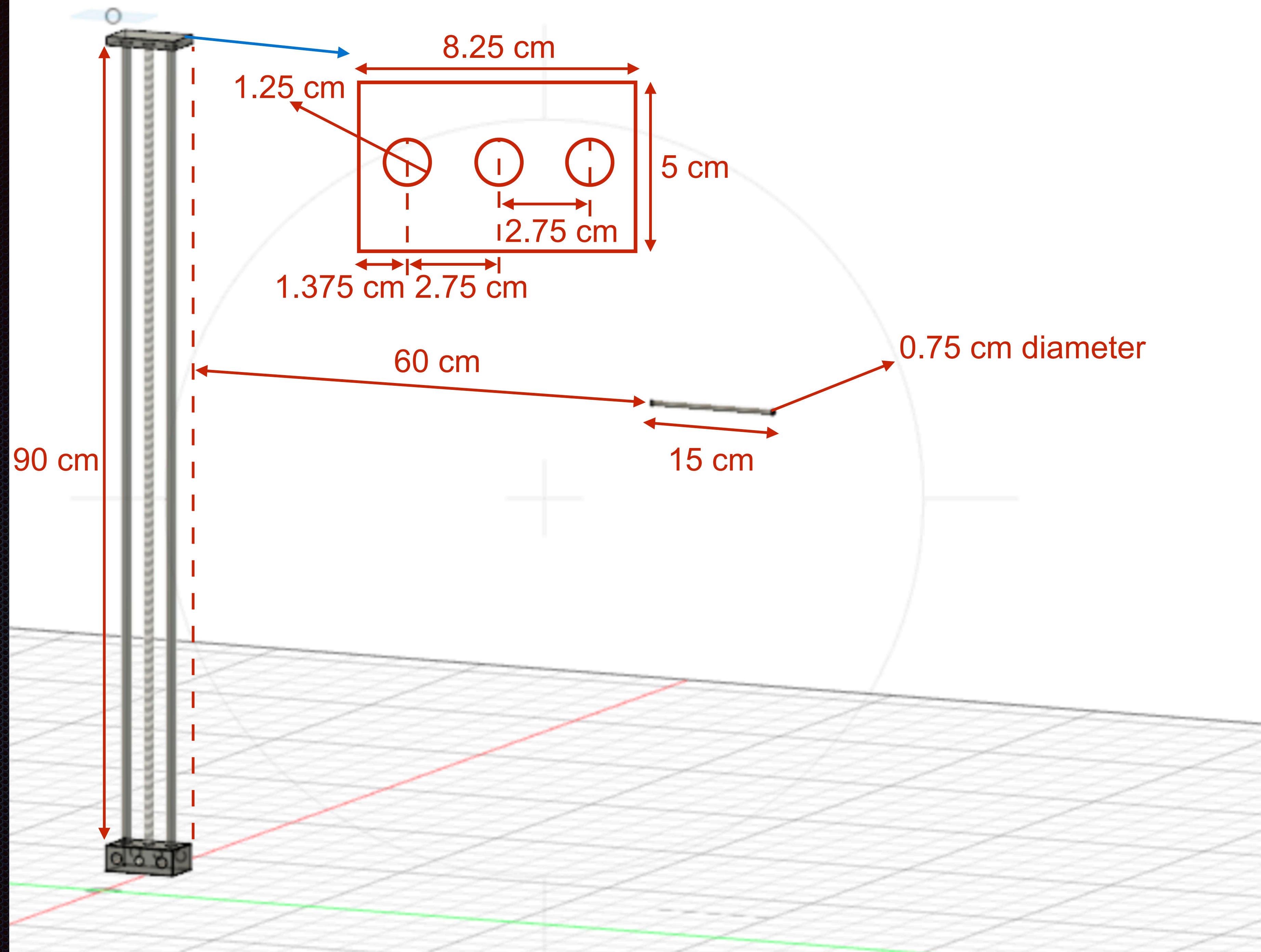
- **Material cost**
- **Machine cost**
- **Cost of your time**

Resources:

- Your peers
- Visit a machine shop
- CAD courses and online tutorials

My problem:





Let's draw a sketch!

Fusion 360 tutorials:

- <https://help.autodesk.com/view/fusion360/ENU/courses/#assemblies>
- <https://www.youtube.com/@AutodeskFusion360/featured>