

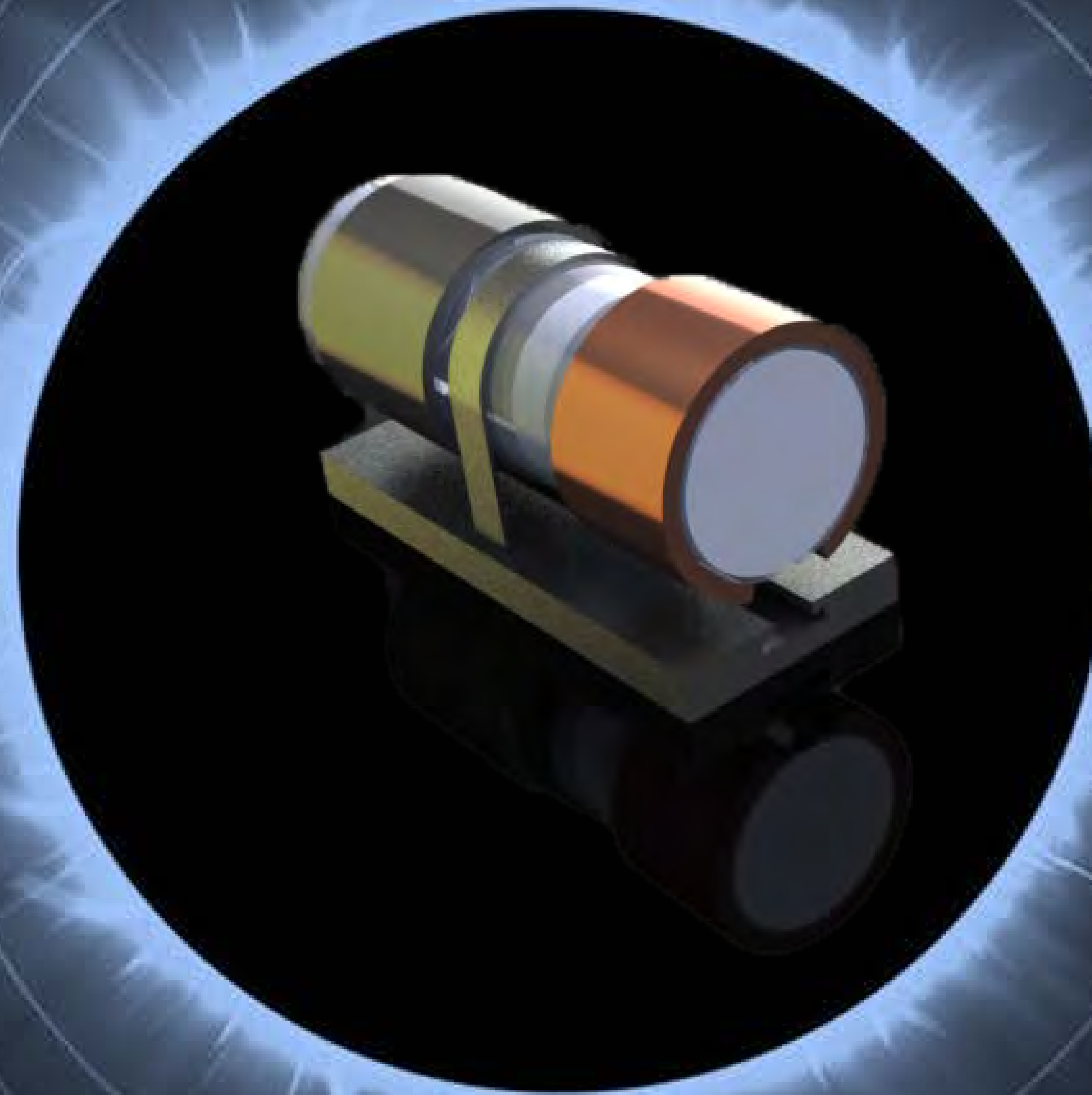
# MAGNETOCALORIC REFRIGERATION



## PROBLEM STATEMENT

- Due to the current interest in Magnetic Cooling, a standardization of Magnetocaloric tables is required.
- The removal of environmentally harmful
- This is a very engineering intensive project, which would require Computational Fluid Dynamics, heat transfer, programming and extensive Mechanical design concepts.
- The project would double as a proof of concept of MCR while being a test rig for the development of new Magnetocaloric Alloys

## CONCEPTUAL DESIGN



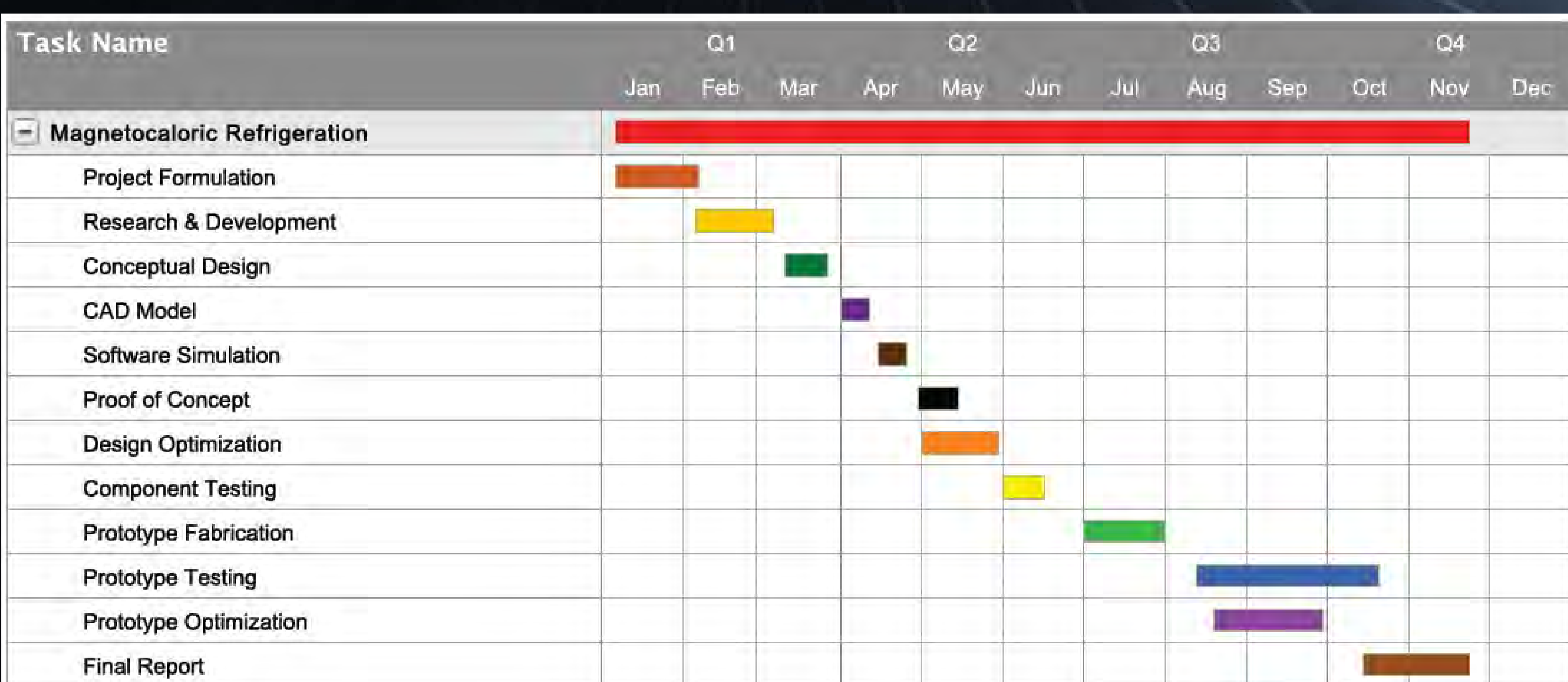
## OBJECTIVE

- Design, build and optimize a Magnetocaloric Refrigerator
- Multi purpose design as test rig for future Magnetocaloric Alloys
- Domestically friendly design

## PROCEDURE

- Design Phase
  - Design working chamber
  - Design heat exchangers
  - Research working fluids
  - Magnetization time
- Manufacturing Phase
  - Manufacture heat exchanger
  - Manufacture working chamber
  - Buy all components and assemble
- Test and design validation
  - Reliability testing
  - Various material testing
  - Record different material  $\Delta T$
  - Vary parameters for increased MCE

## TIMELINE



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