Karlsruhe Institute of Technology

HELMHOLTZ ENERGY MATERIALS CHARACTERIZATION PLATFORM

HELMHOLTZ ASSOCIATION

LIMTECH Alliance

Institut für Neutronenphysik und Reaktortechnik

Anlagenentwicklung, Systemdynamik und Sicherheit

# Liquid Metal Facilities for Energy Technology @ HAC

**Structure of HEMCP AMTEC Center (HAC)**

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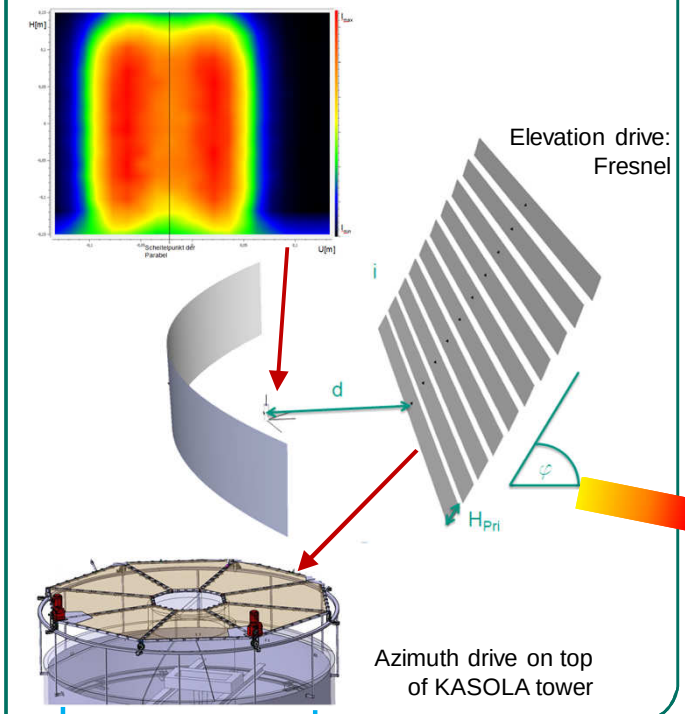
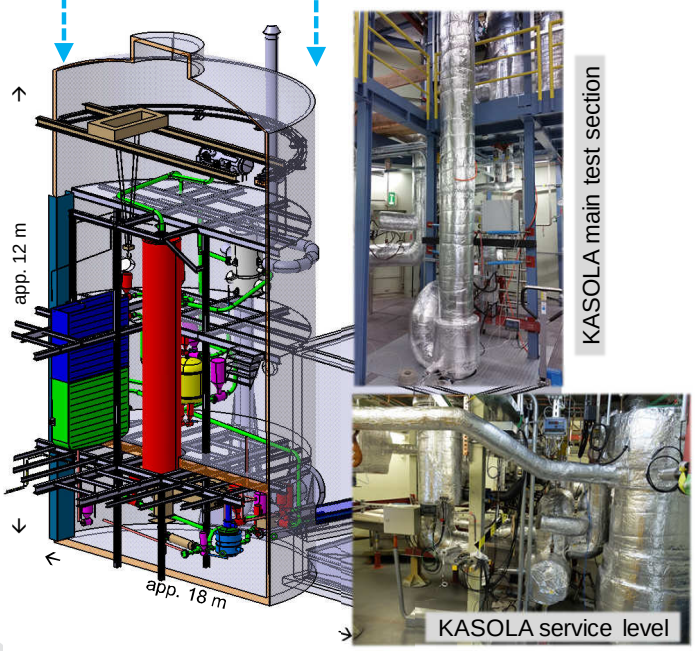
HEMCP AMTEC CENTER

## Objectives

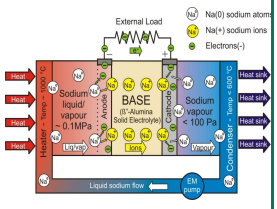
- Experimental data base from basics to system scale
- Provision of a liquid metal design toolbox (two test ports plus infrastructure)
- Liquid metal instrumentation development and qualification
- High temperature materials for energy conversion

## Solar focus on AMTEC receiver

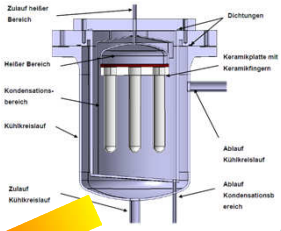


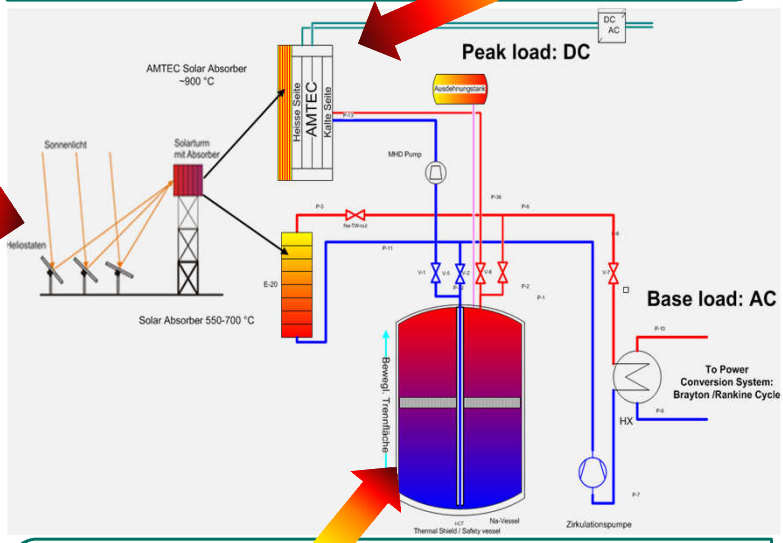




## AMTEC TEst FAcility (ATEFA)



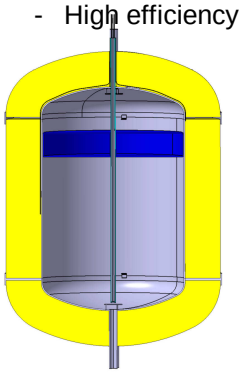

AMTEC cluster





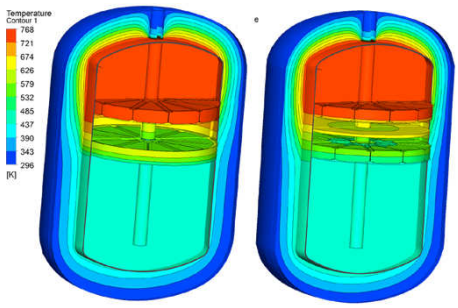

## Frozen thermocline as TES for liquid metal

- Less pumping power compared to 2-tank
- Free surfaces only in expansion tank
- High efficiency due to excellent thermal insulation



Starting design

**Temperature distribution in tank**



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