

Heat transfer simulation of MPD-TPC detector

BY MACIEJ CZERKAWSKI

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Wydział
Fizyki

POLITECHNIKA WARSZAWSKA

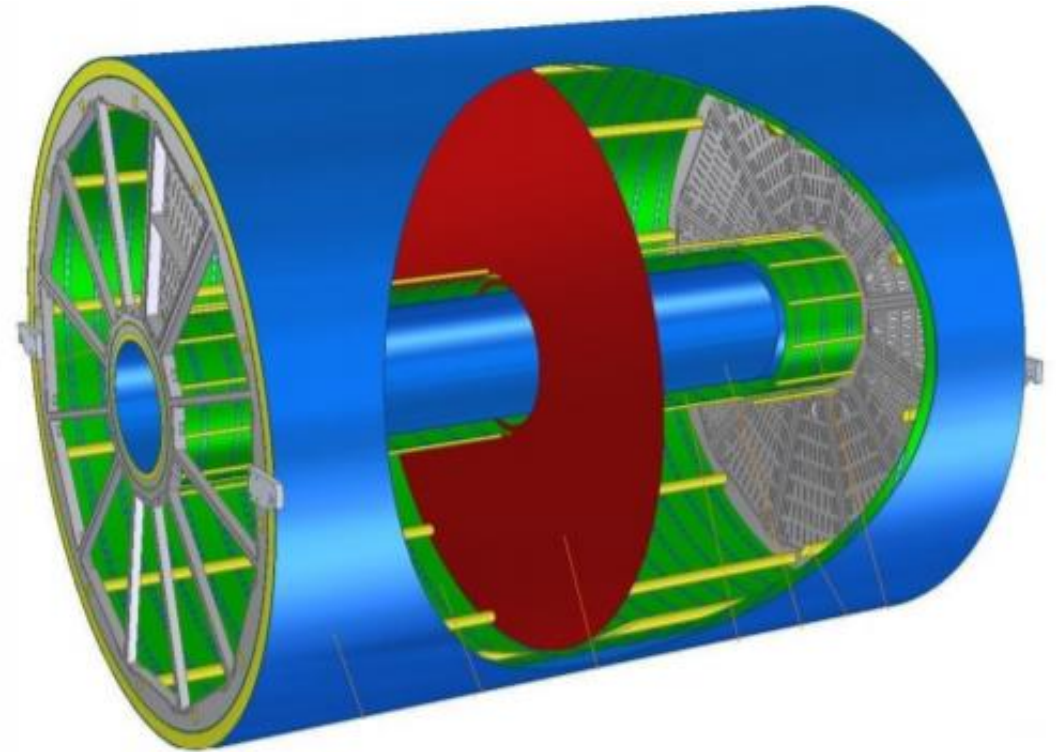
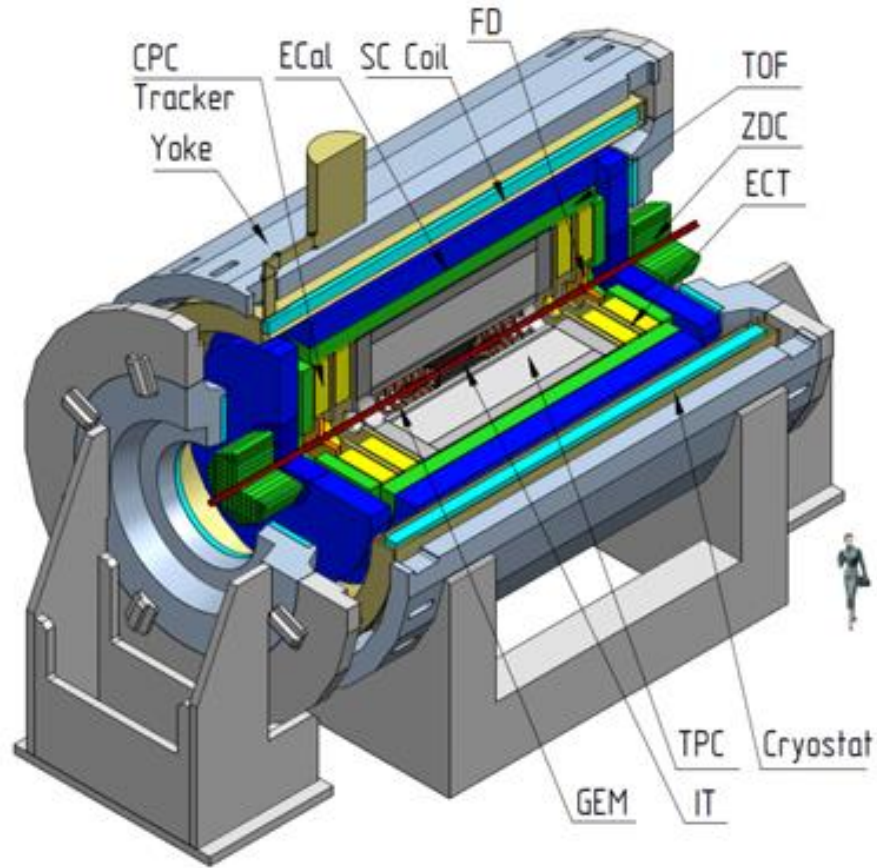
Politechnika
Warszawska



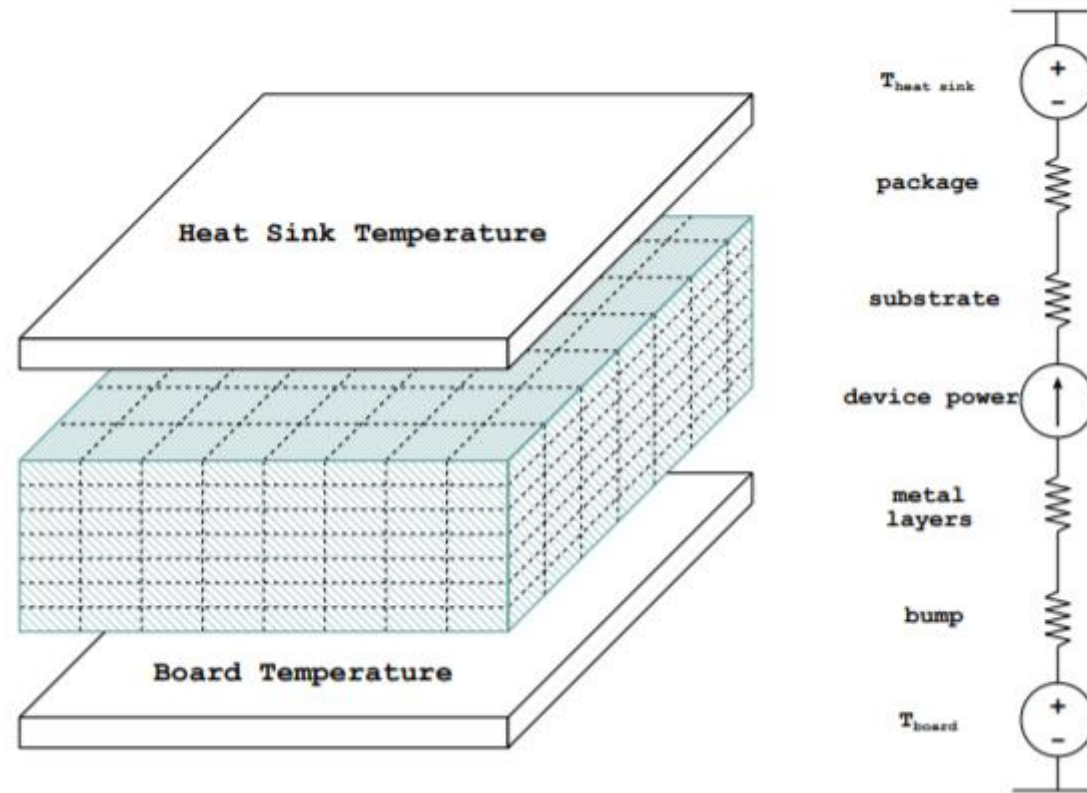
Outline

- Why do we need temperature simulations for MPD-TPC detector?
- How does the virtual model look like?
- Tools and programs
- Simulations
- Plans for the future
- Bibliography

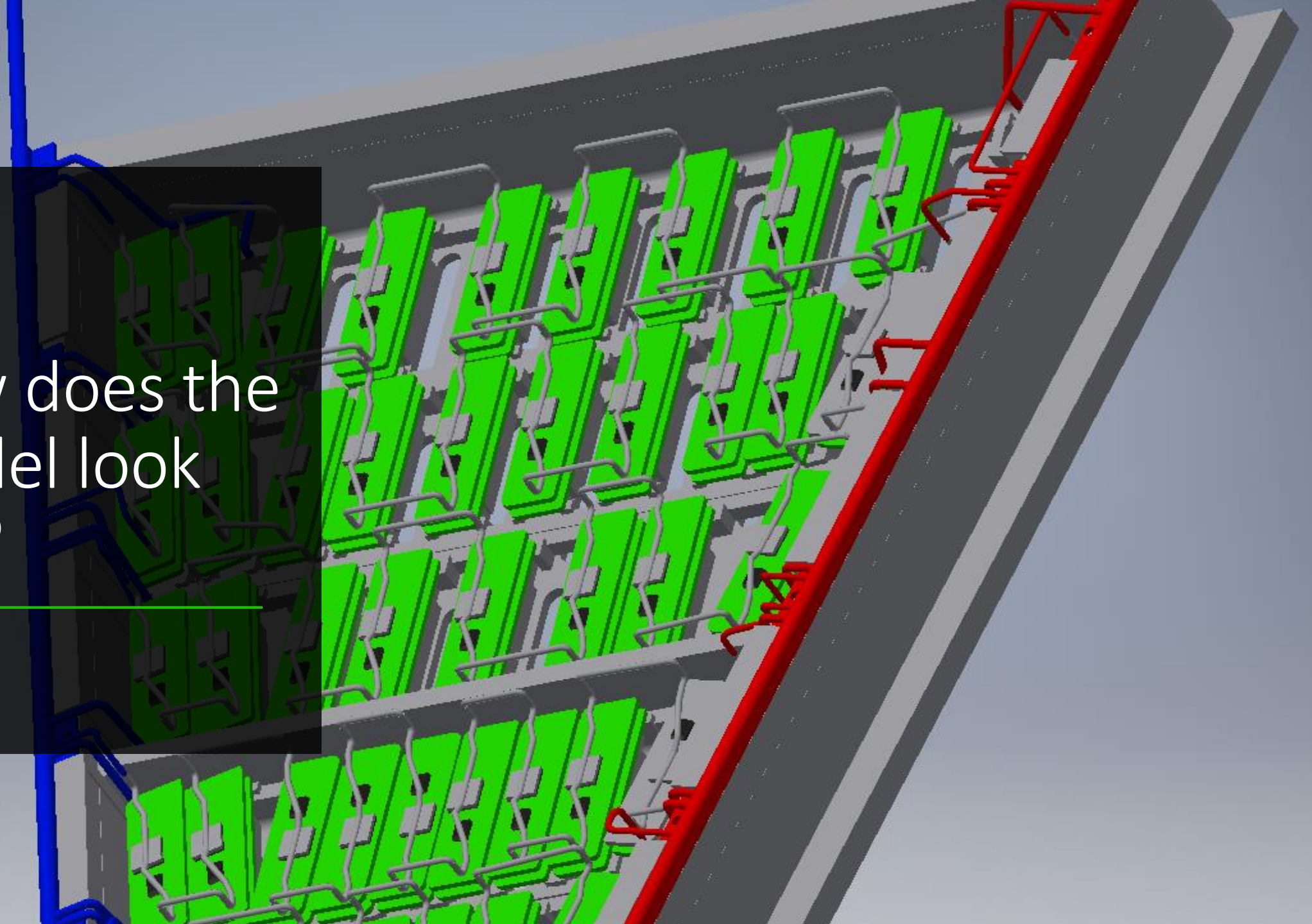
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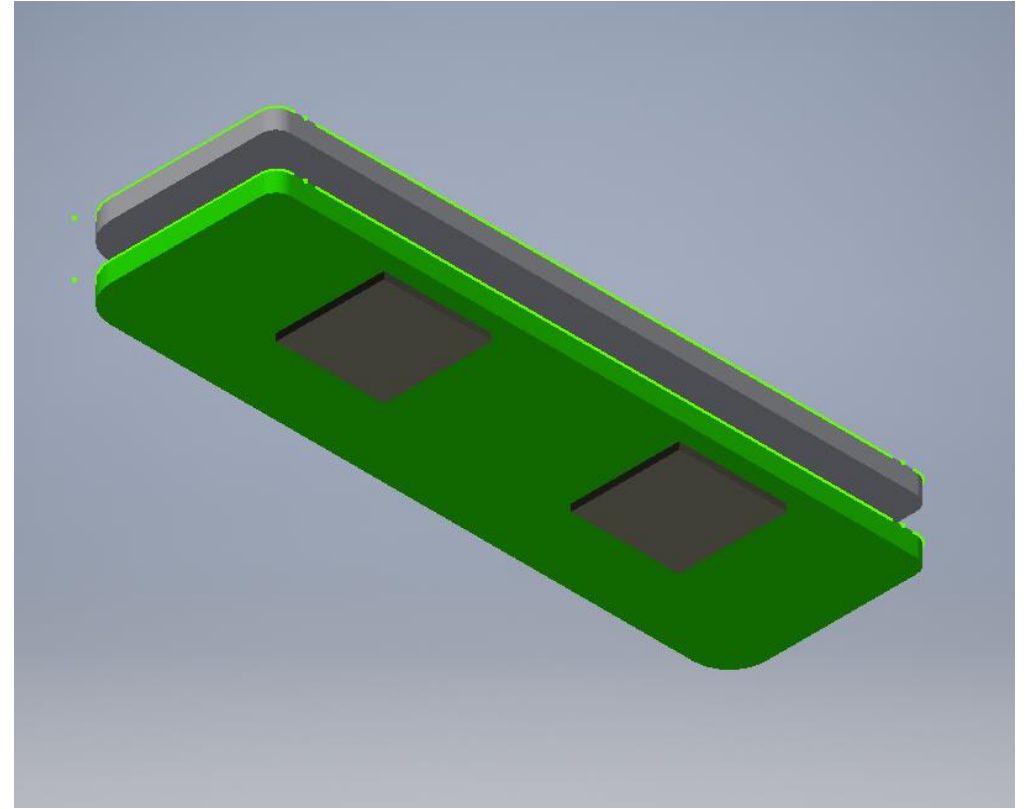
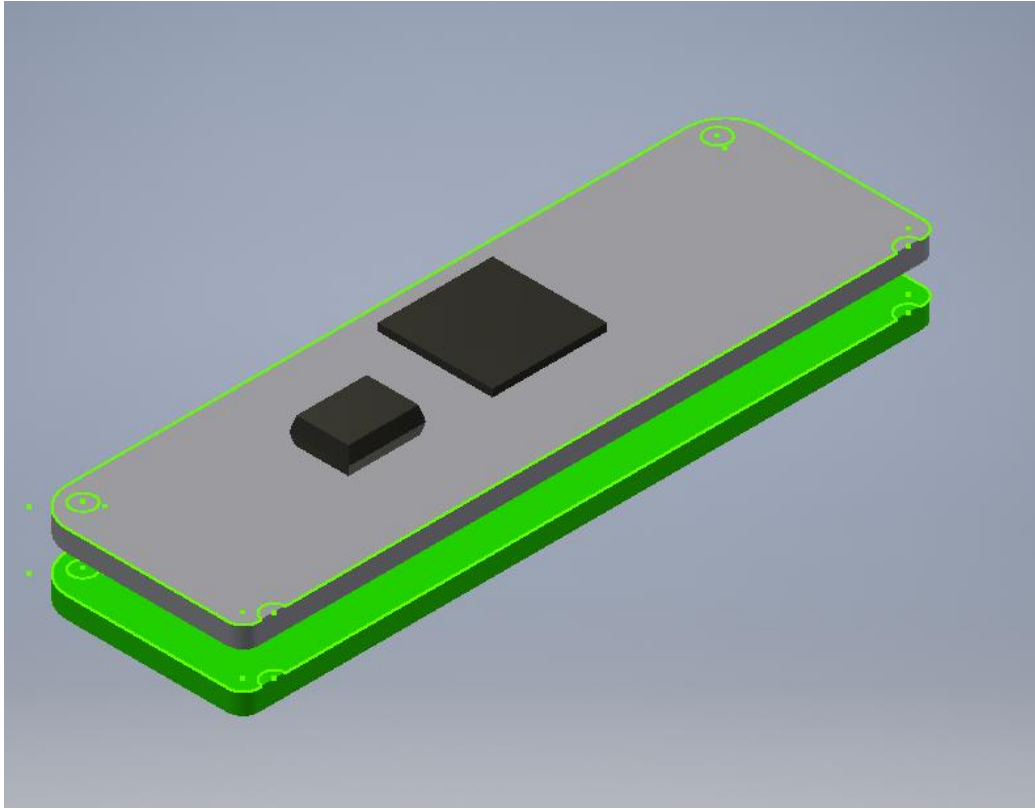
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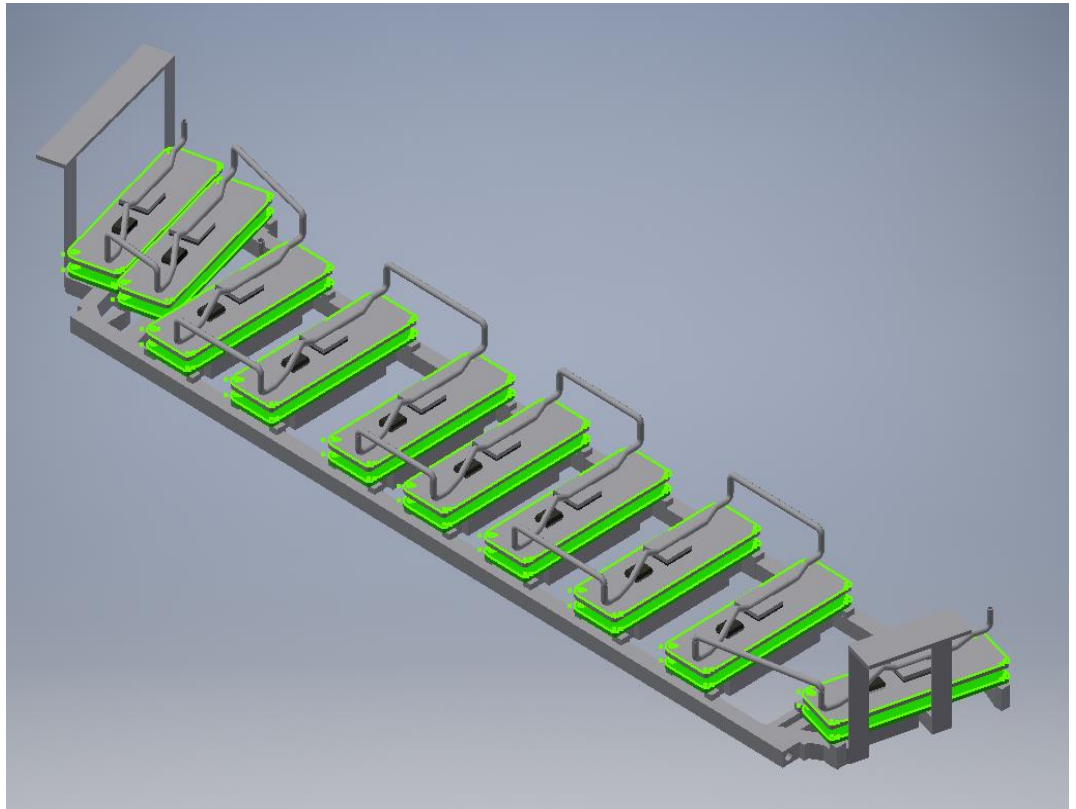
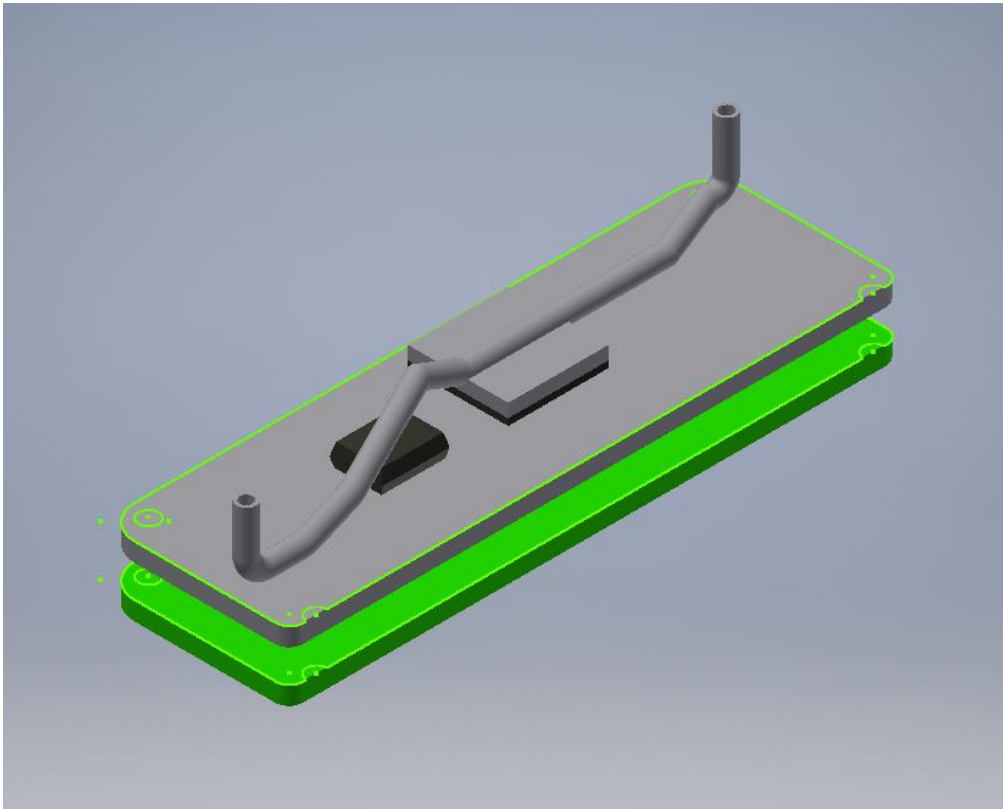
How does the
model look
like?



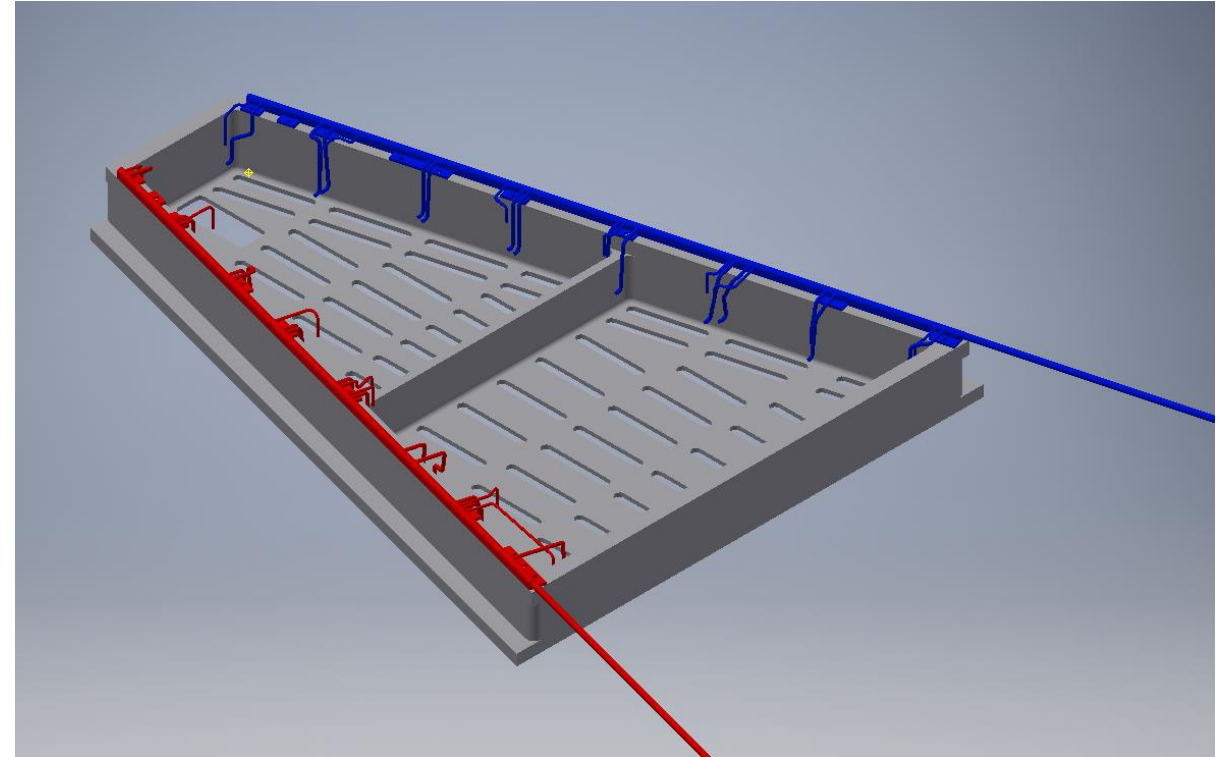
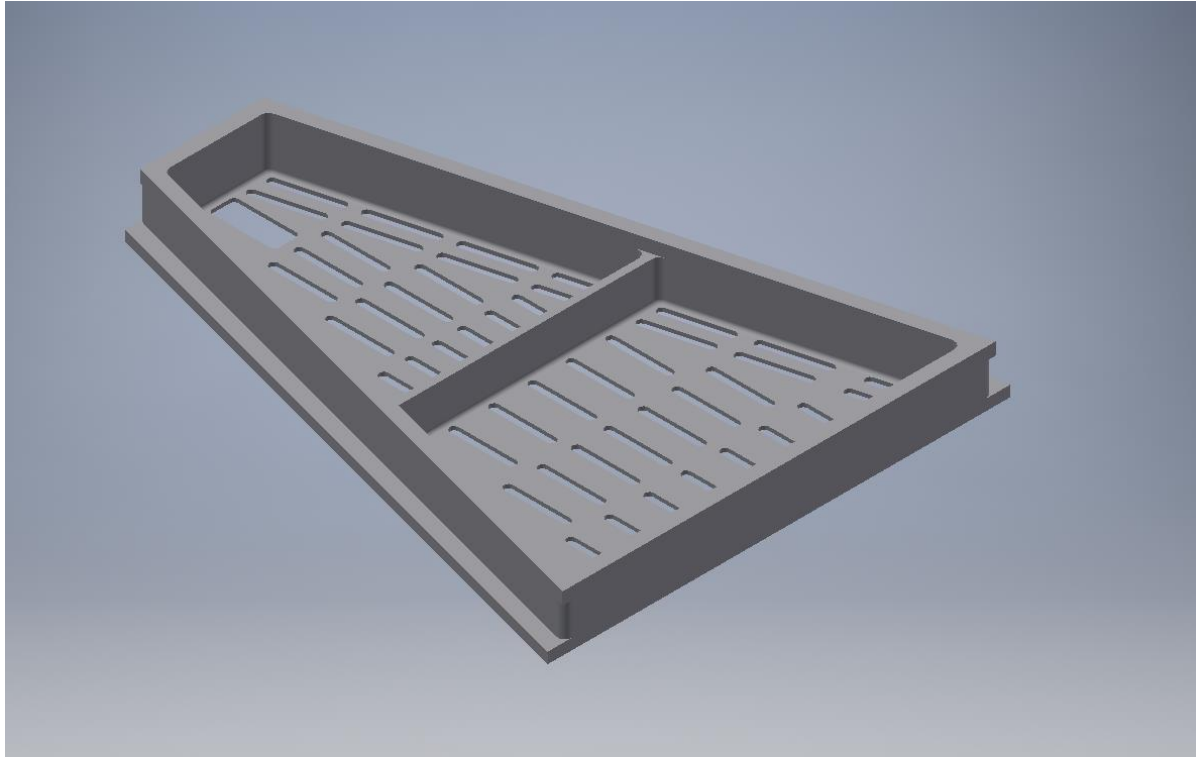
Printed Circuit Board



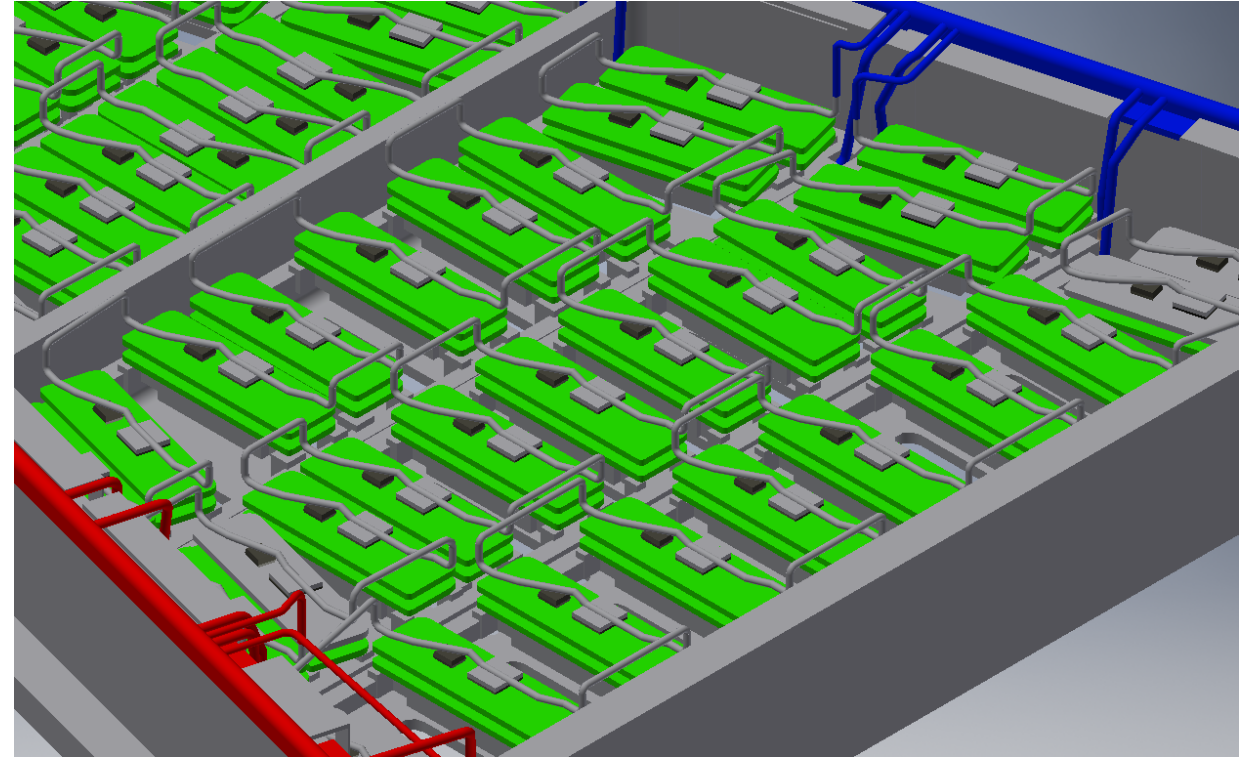
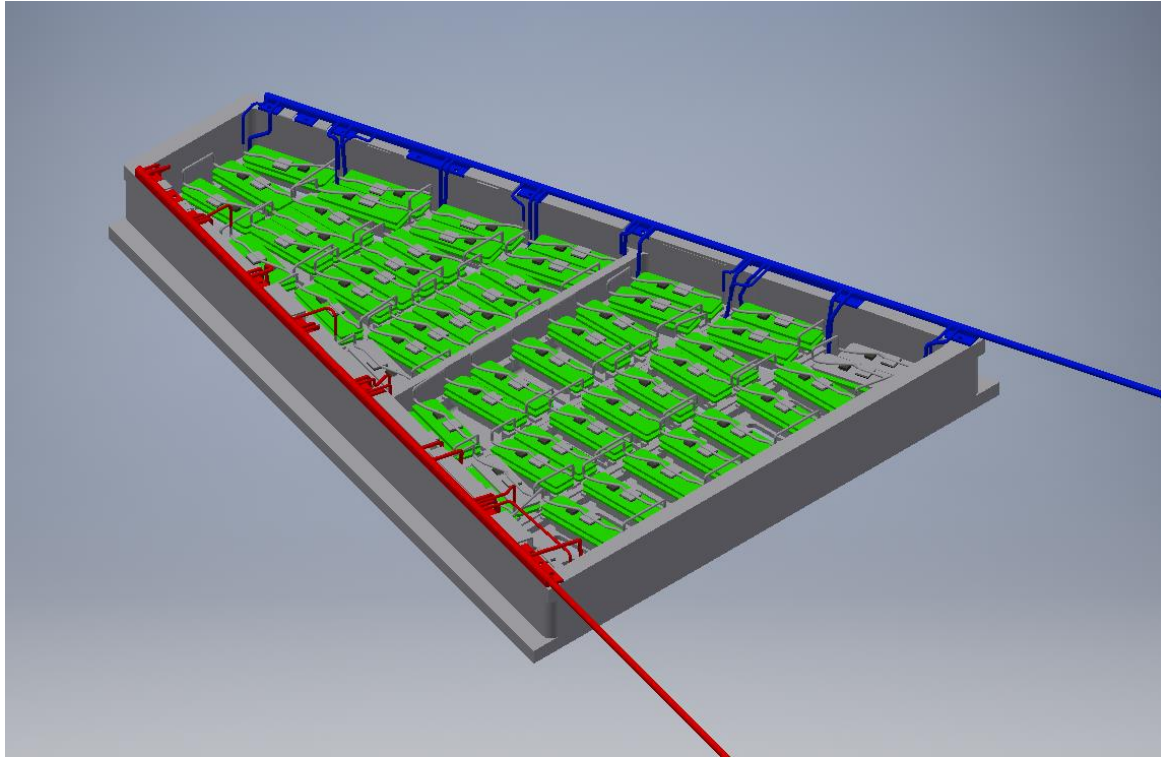
Cooling system for PCB's



Cooling system and Readout Chamber



Cooling system and Readout Chamber



Tools and programs



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CFD

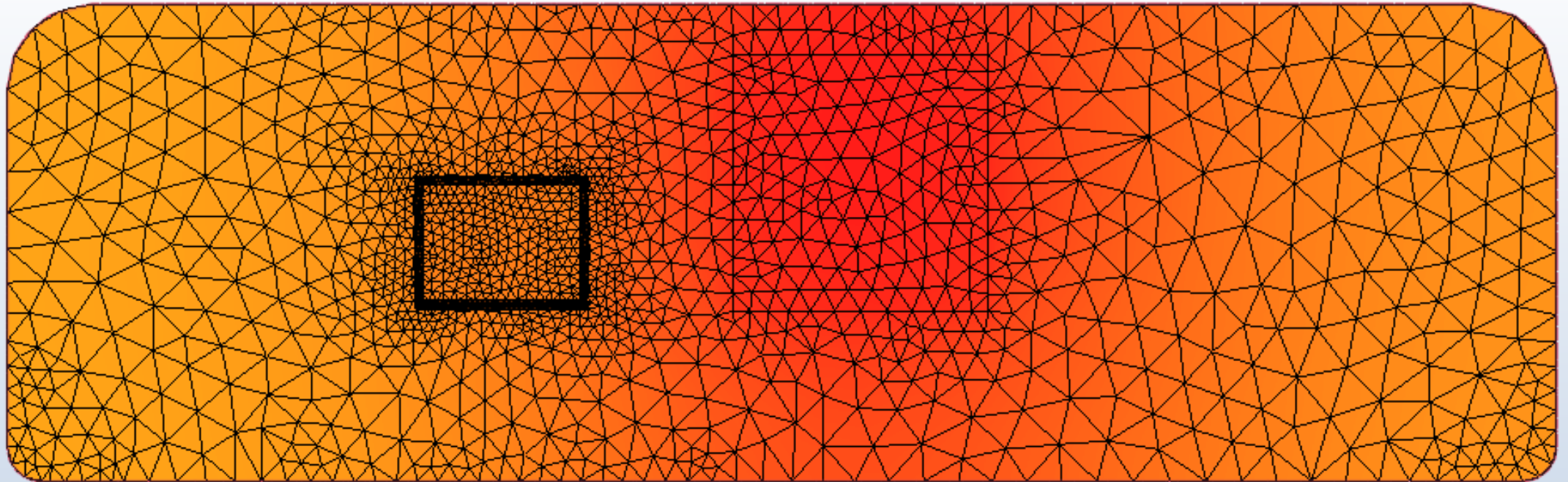
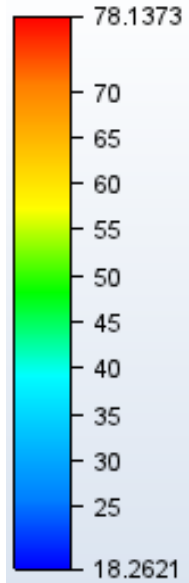


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Simulations

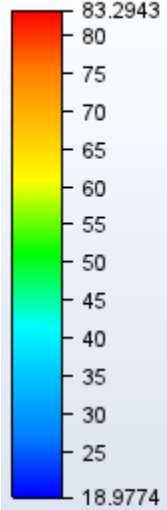
(6) Temperature - Celsius

180 000 elements

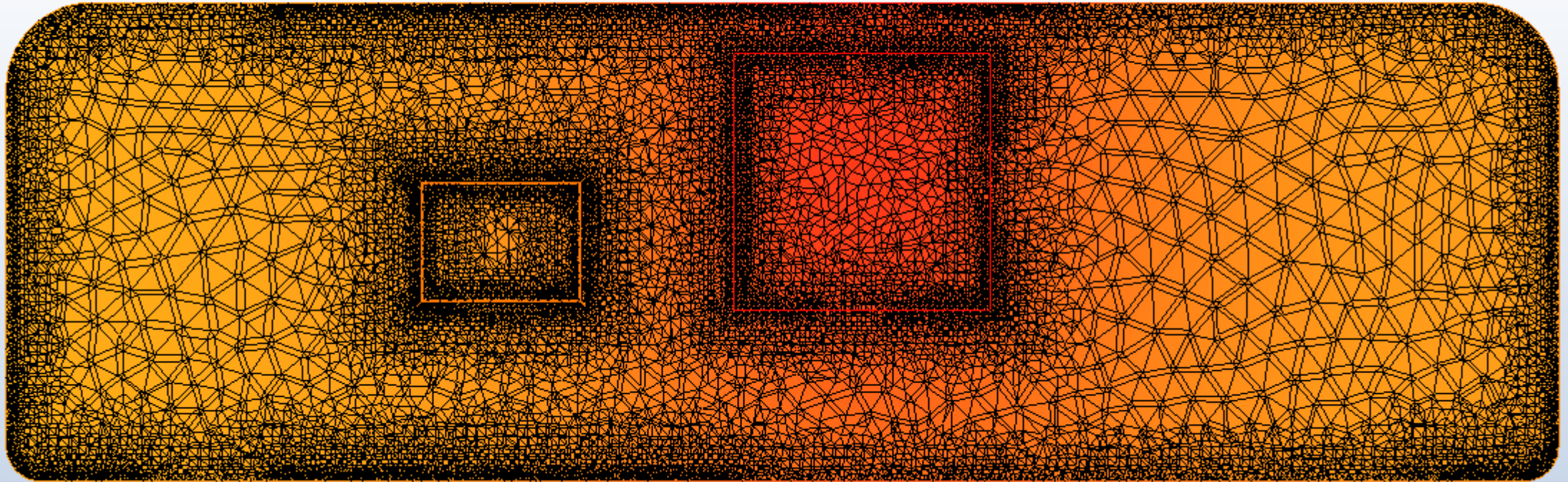


Simulations

(6) Temperature - Celsius

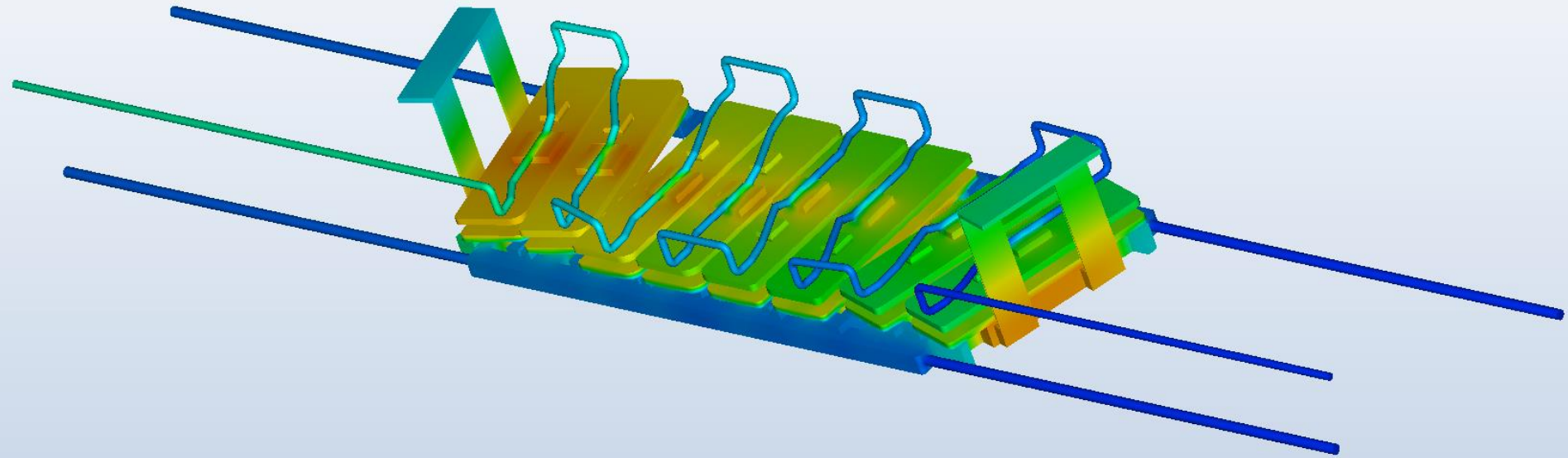
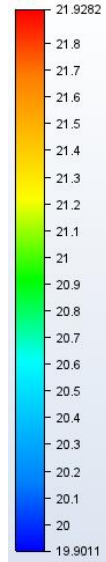


52 000 000 elements

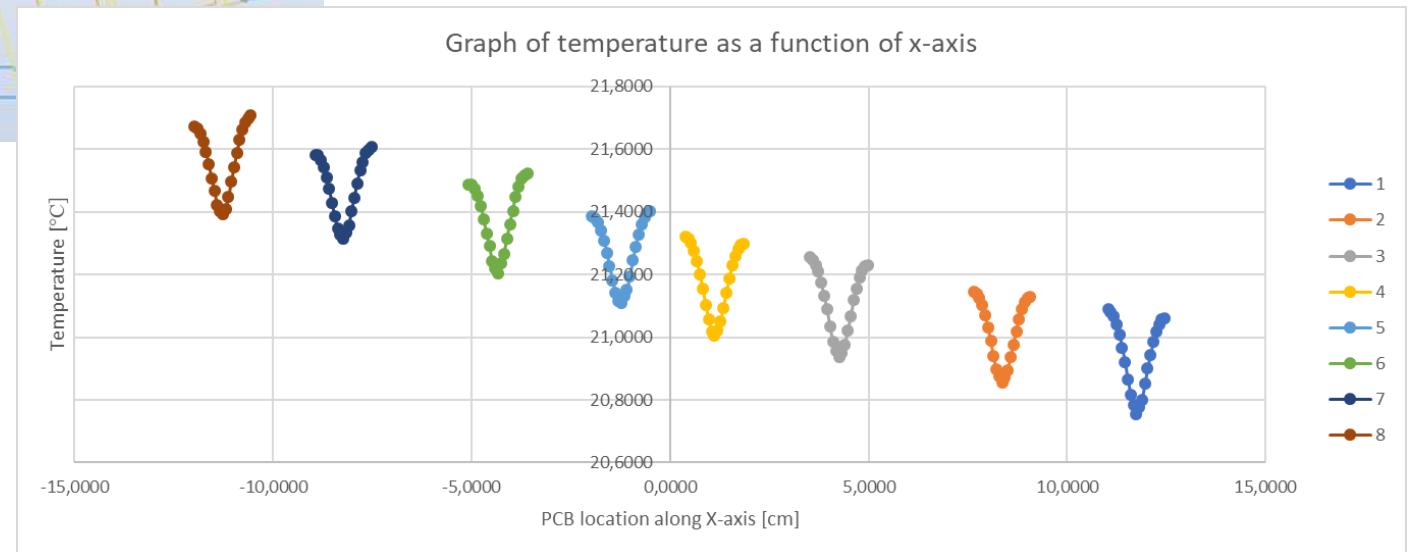
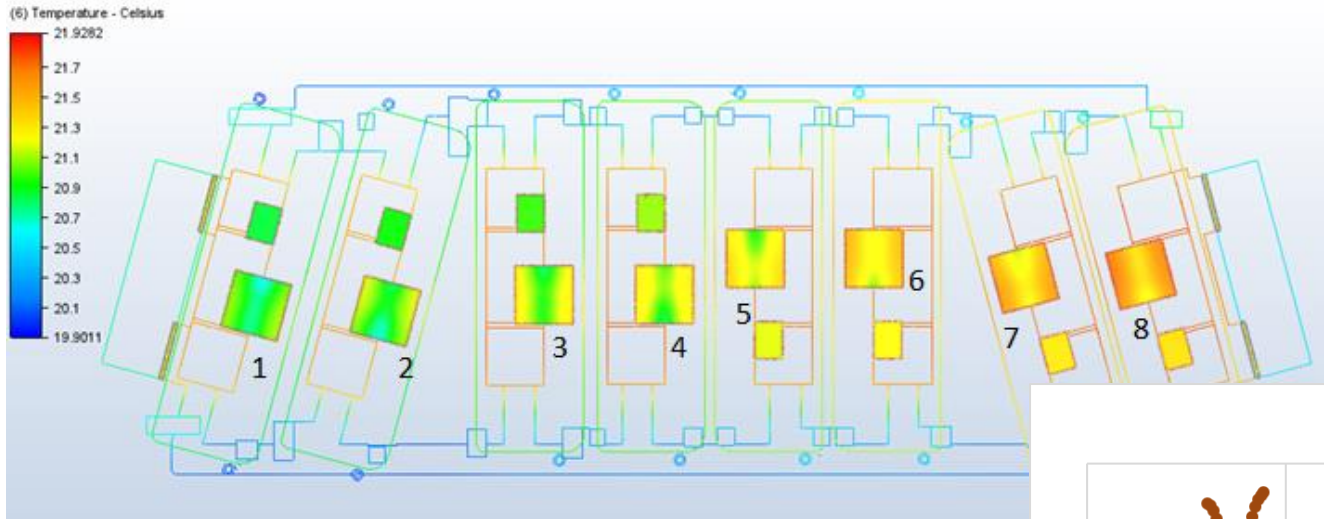


Simulations

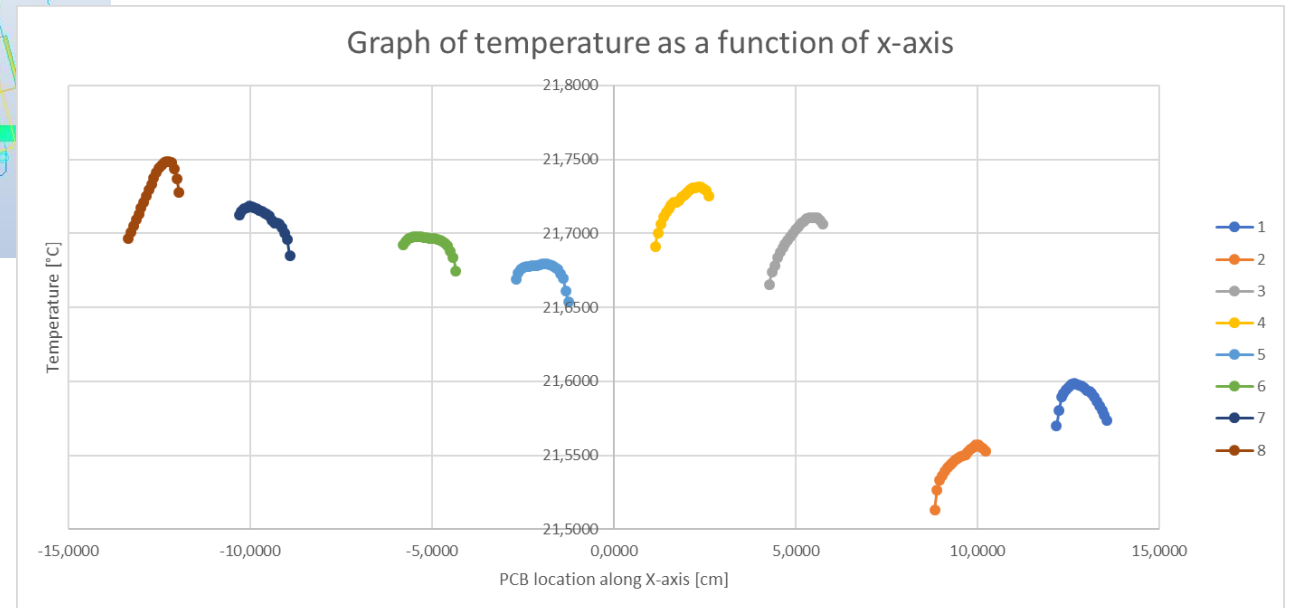
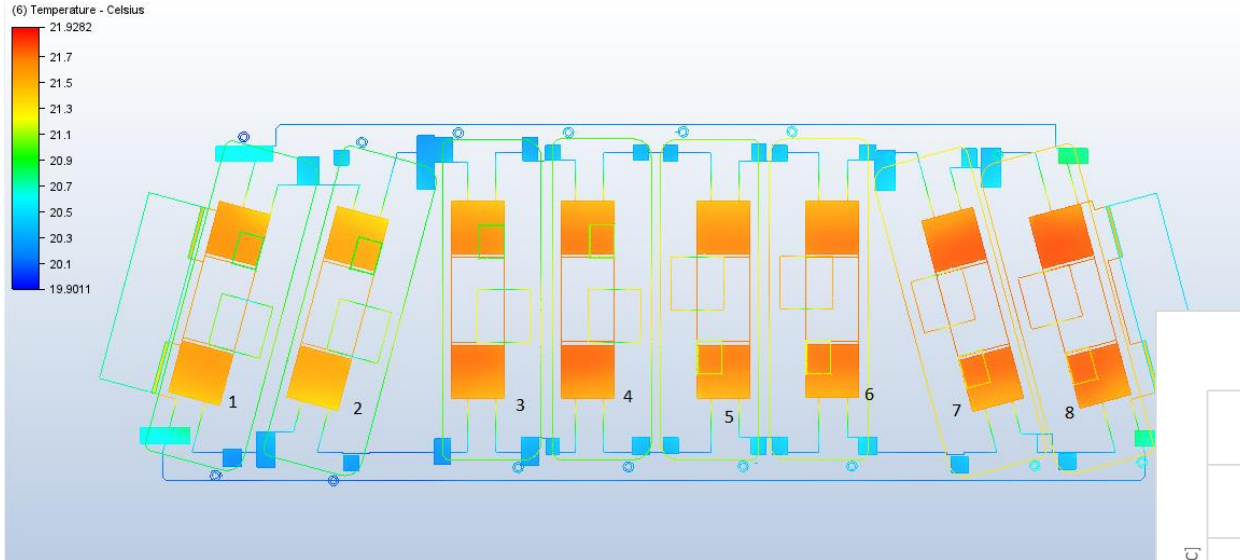
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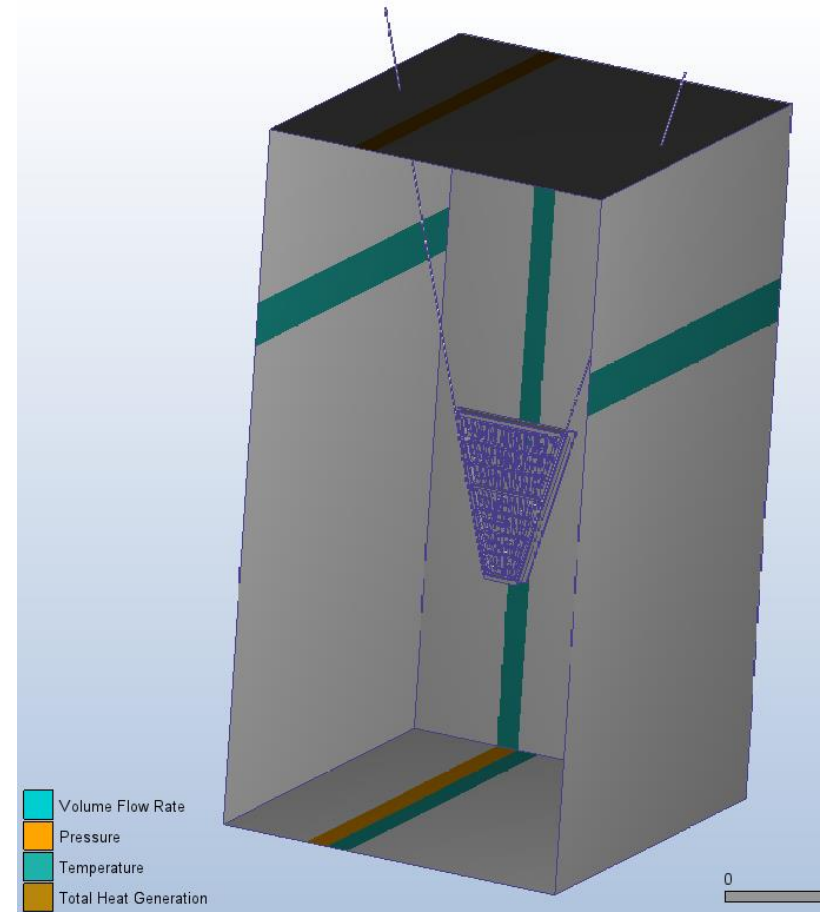
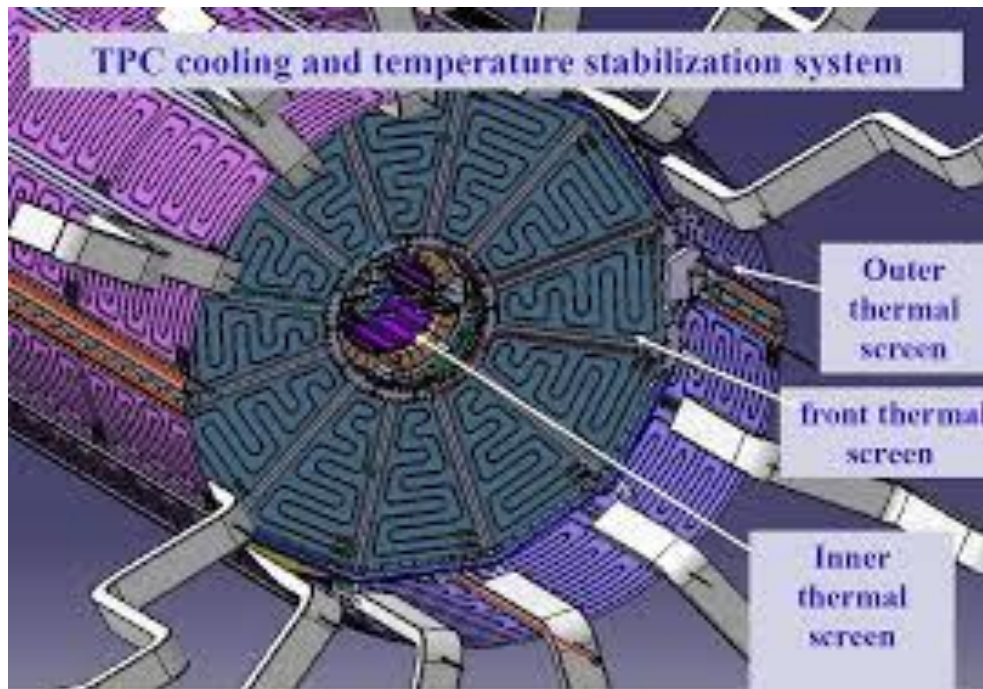
Simulations



Simulations



Plans for the future



Thank you for
the attention.

Bibliography

- Power and Thermal Management of System-on-Chip ~ Wei Liu
- JINR document server <http://lt-jds.jinr.ru/?ln=en>