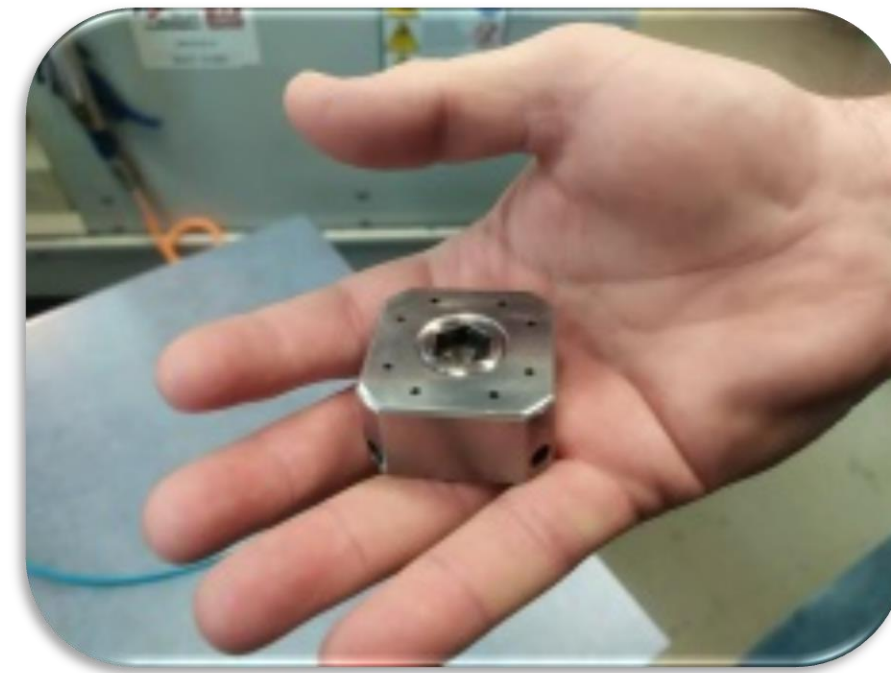
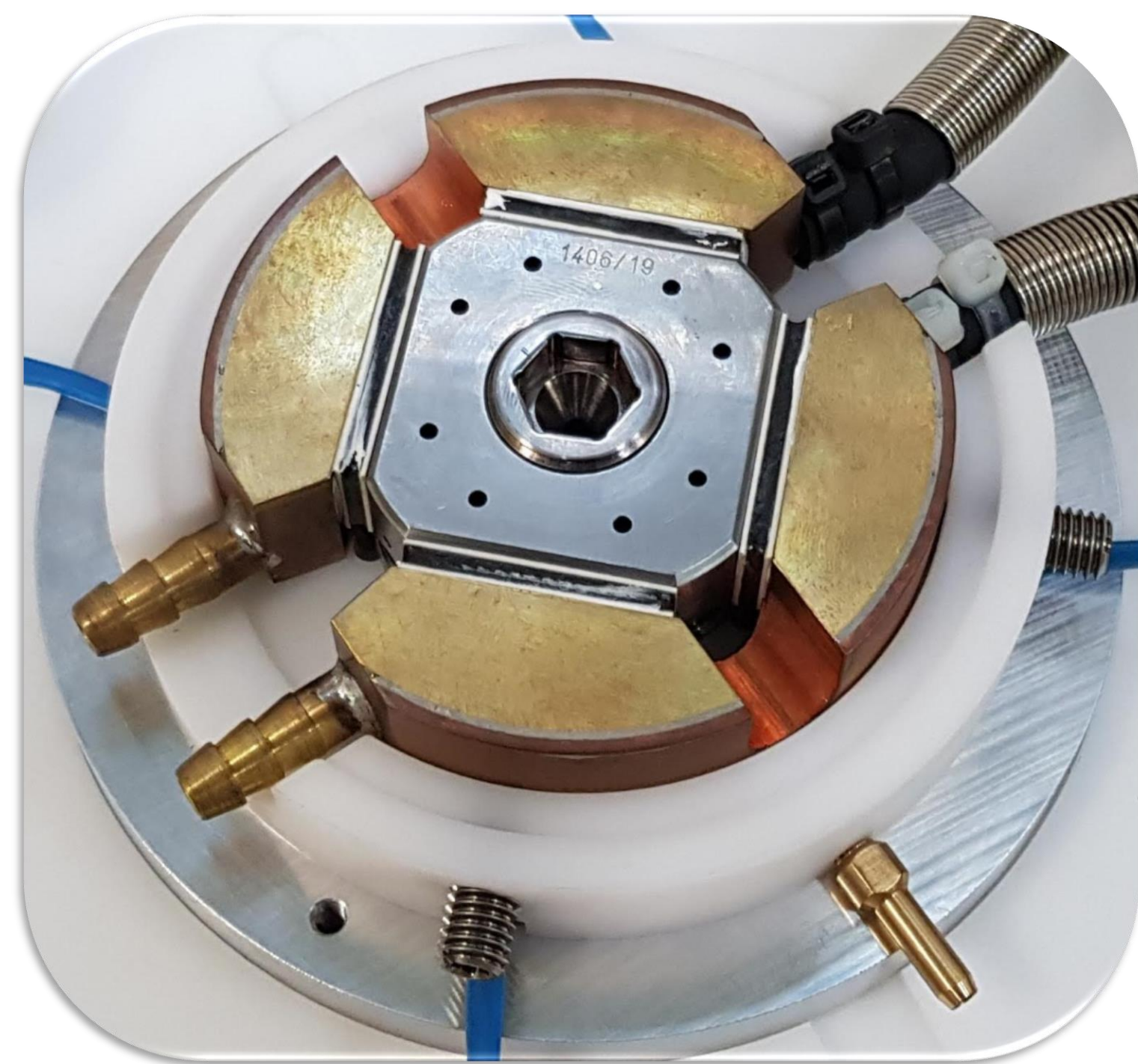


# Pressure cell for soft matter microscopy and spectroscopy

J. Arabas, R. Okoniewski, H. Parashar, J. Szczeppek, J. Zwoliński

## Very small rectangular pressure cell



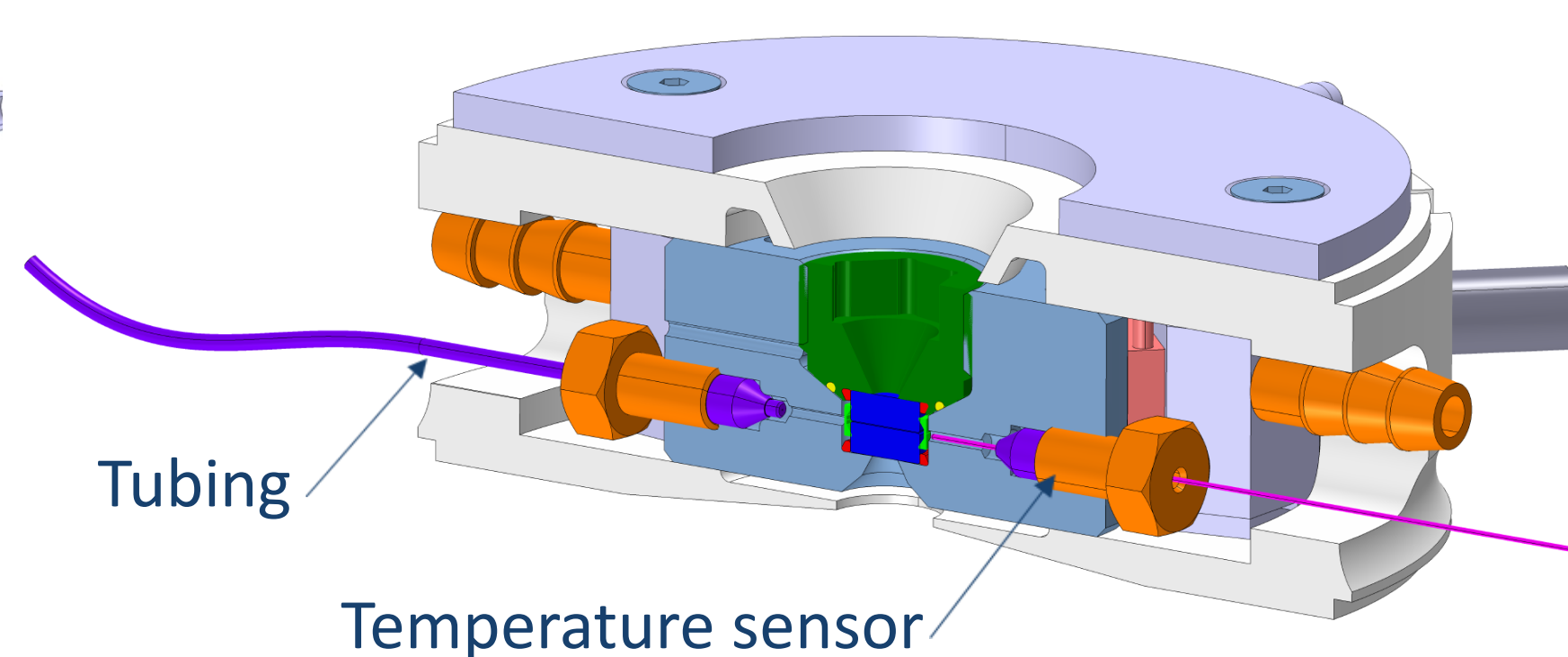
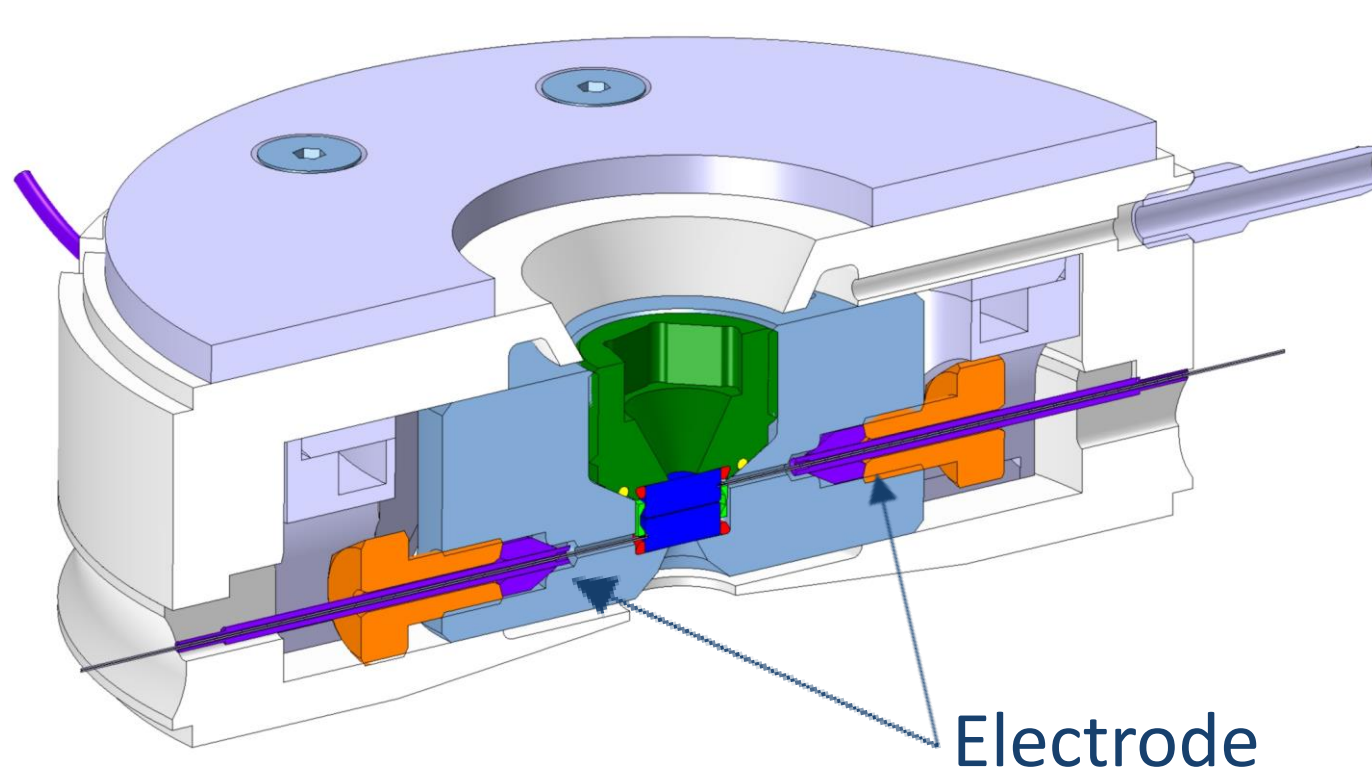
Originally developed for microscopic observation of phase transition of bio-materials at low temperature under European project SAFE ICE (2005).

The upgraded cell (2020) became useful for both microscopy and spectroscopy of soft matter.

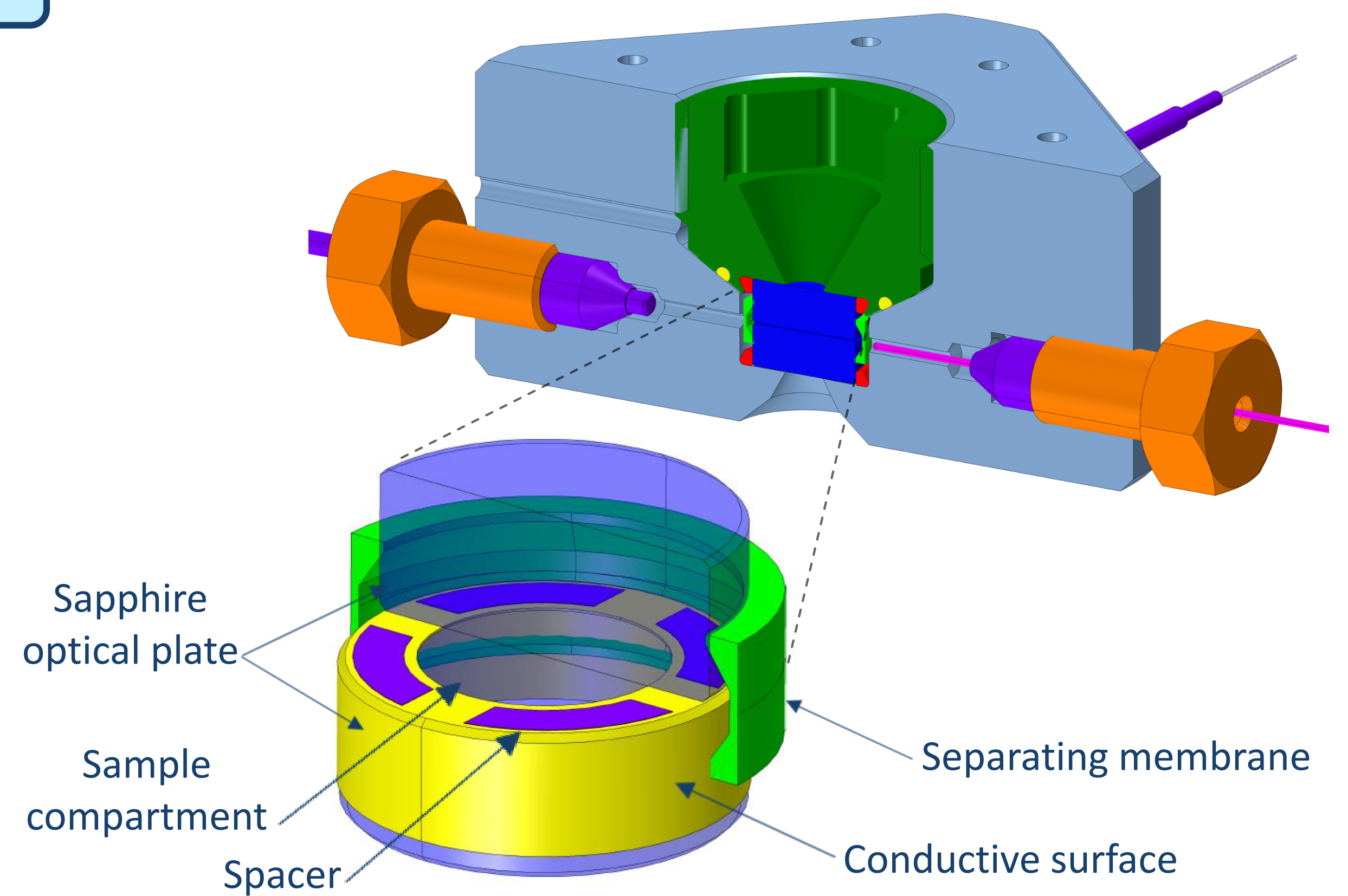


The further development of the cell is foreseen for SAXS measurements.

## Miniature fitting ports and optical sample compartment

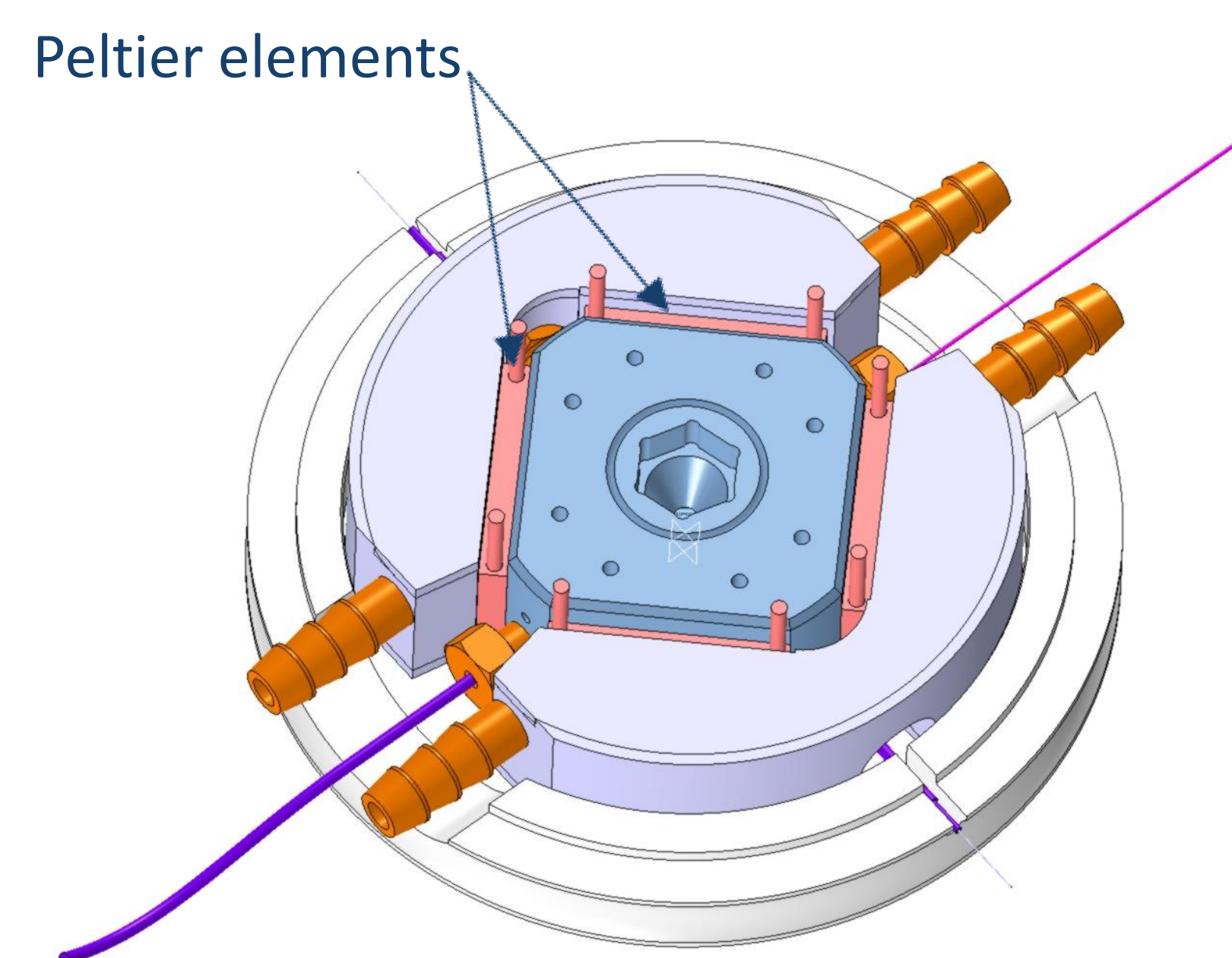


Miniature fittings (tube 1/16", electrical connectors, thermocouples)



Miniature sample compartment (tens of  $\mu\text{L}$ )

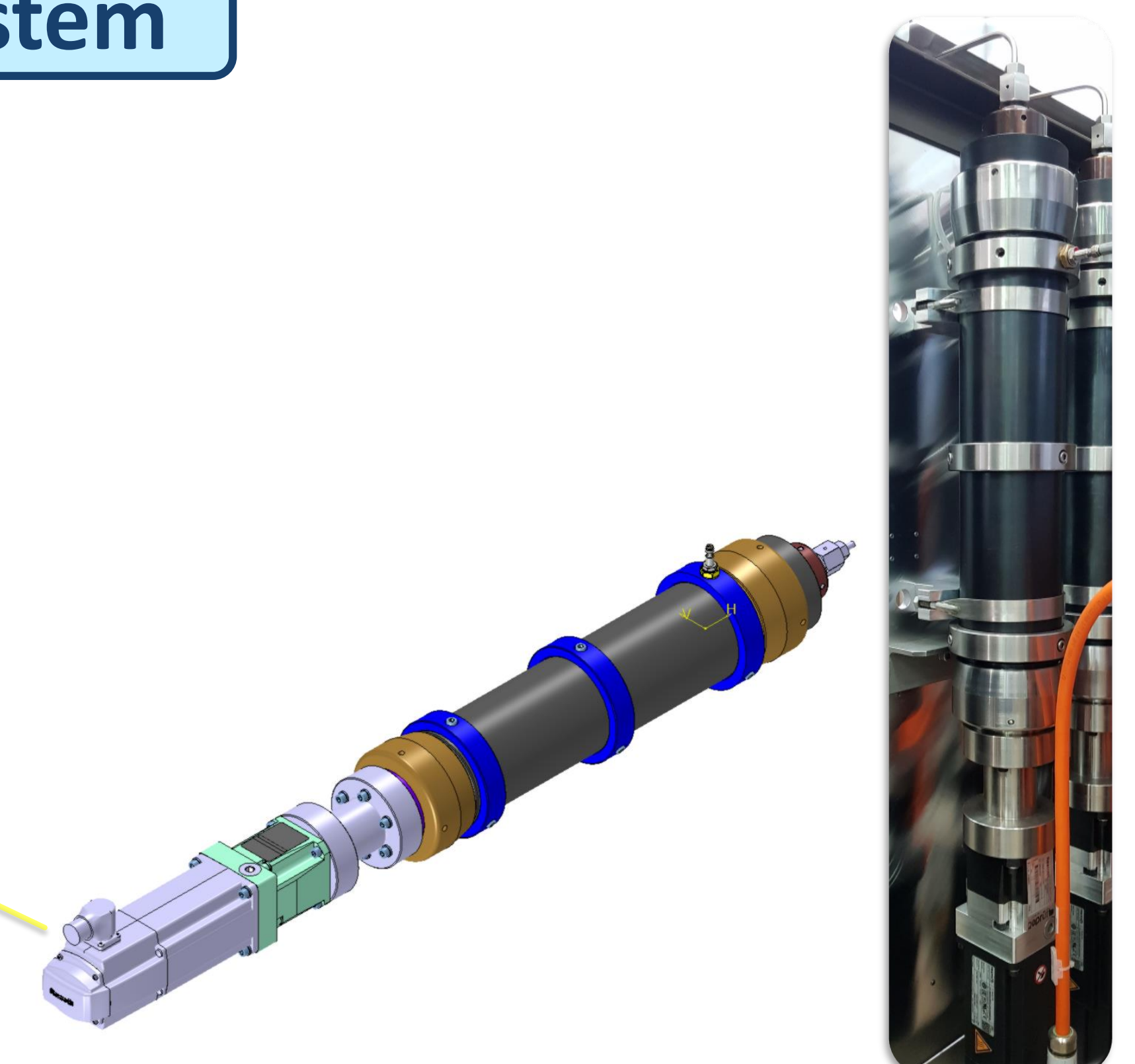
## Fully electronically controlled pressure – temperature supplying system



Smart heating/cooling system with Peltier elements



Visualization of phase transition in foods (TU Berlin, Germany, 2005)



Electro-mechanically driven Micropump allows pressure-temperature sweep with bar per bar precision

