



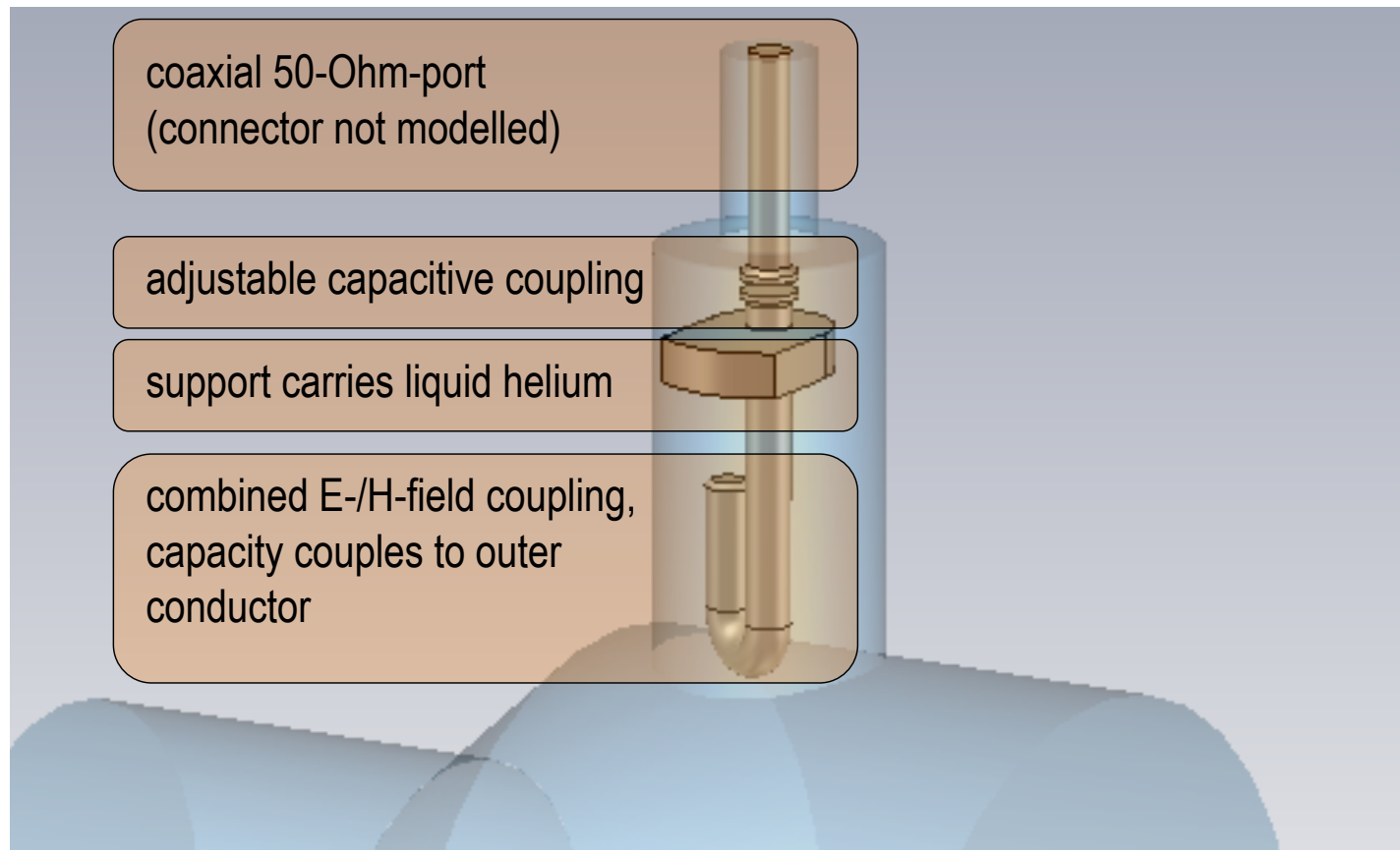
# HOM Coupler Design – Status, a problem and a question

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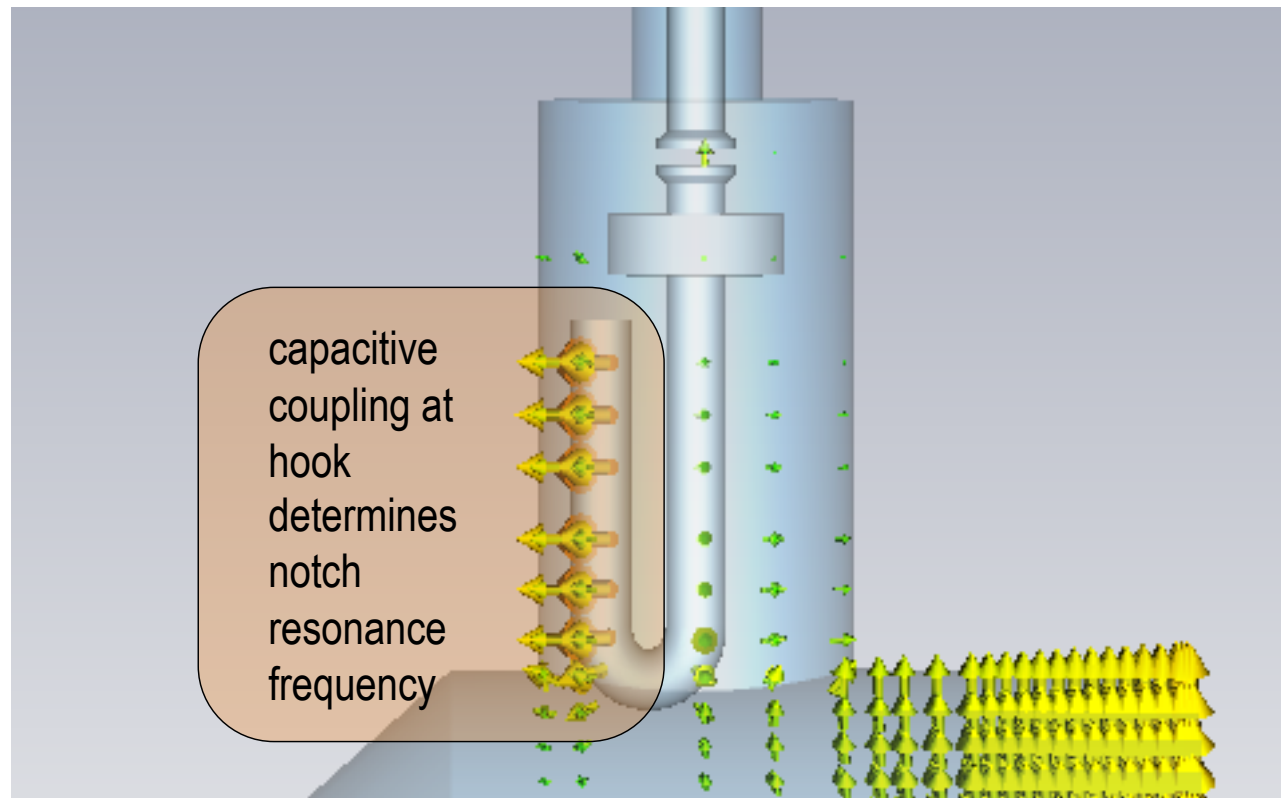
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## "Classical" LEP hook design as starting point (priv.com. WW)



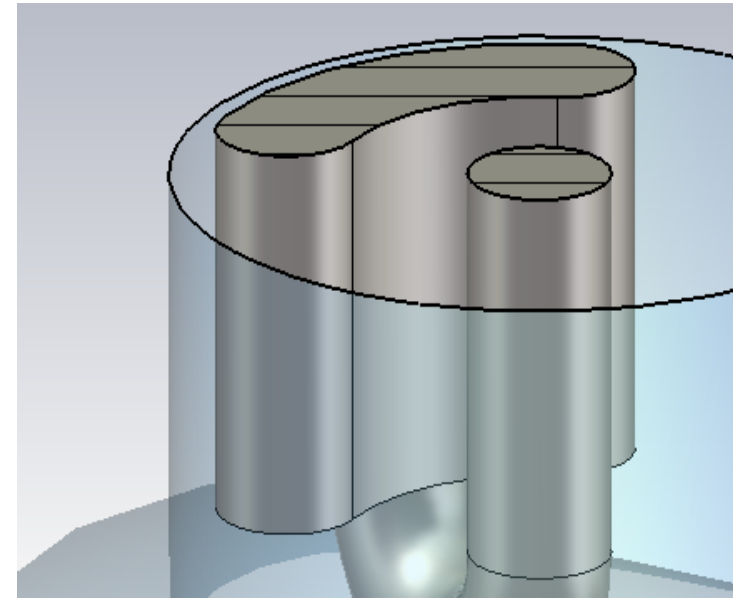
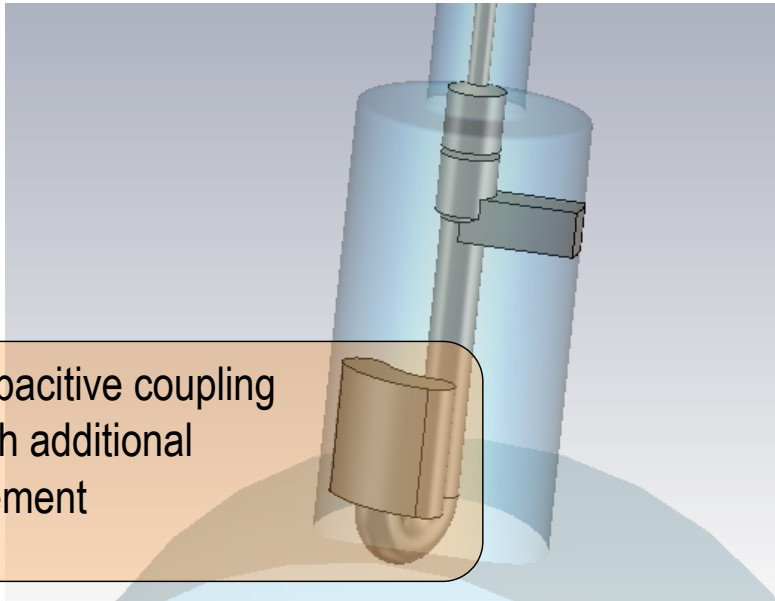
## E-field geometry @ 704 MHz



strong capacitive coupling between "hook" and outer conductor

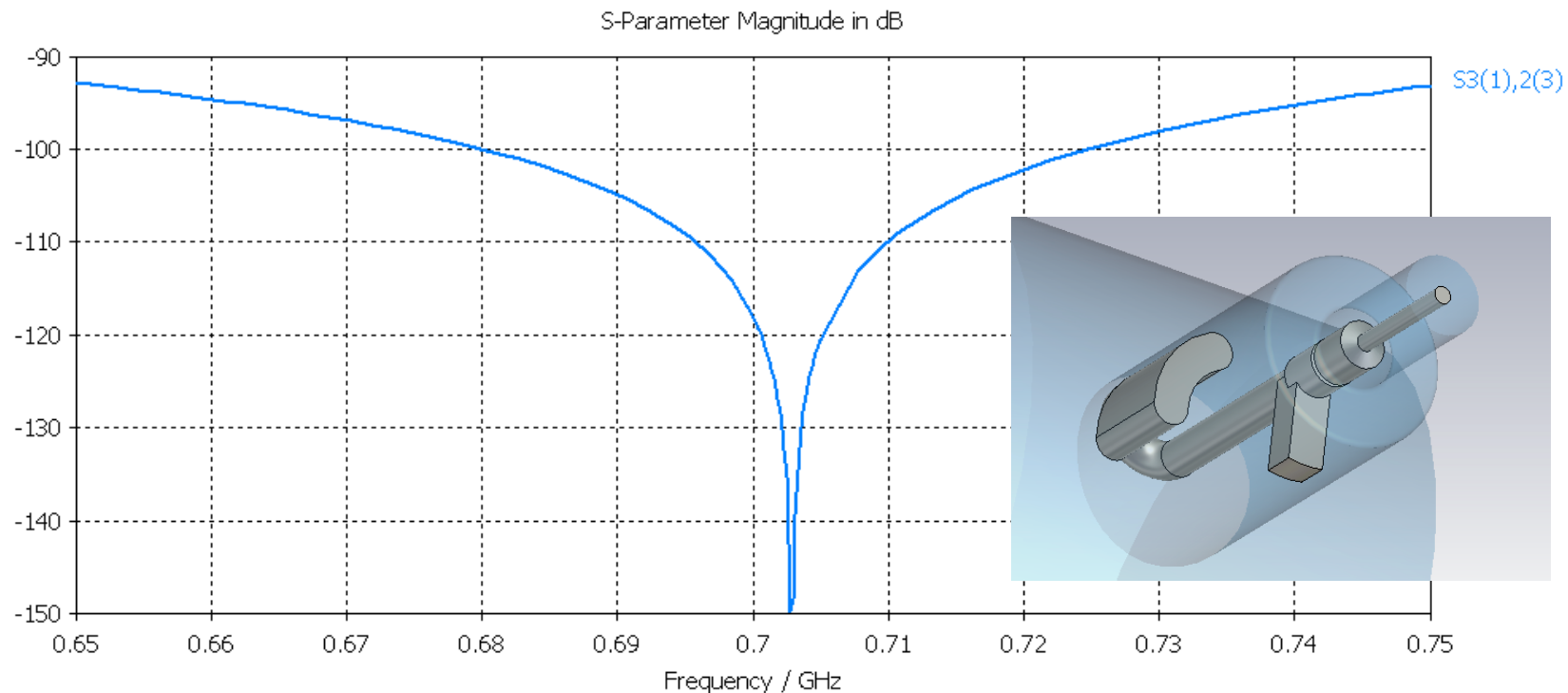
Pure hook not tunable for 704 MHz => Modification of hook end in order to adjust fundamental mode notch filter

enlarge capacitive coupling  
at hook with additional  
surface element





## Waveguide( $TM_0$ )–Coax–Transmission blocked @ fundamental mode frequency => Tuning ok

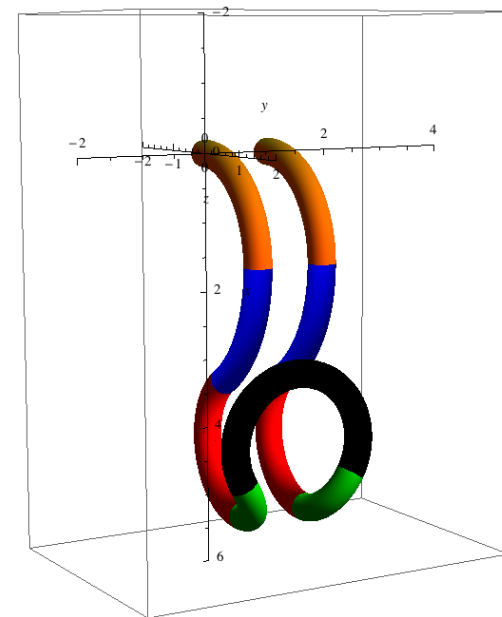
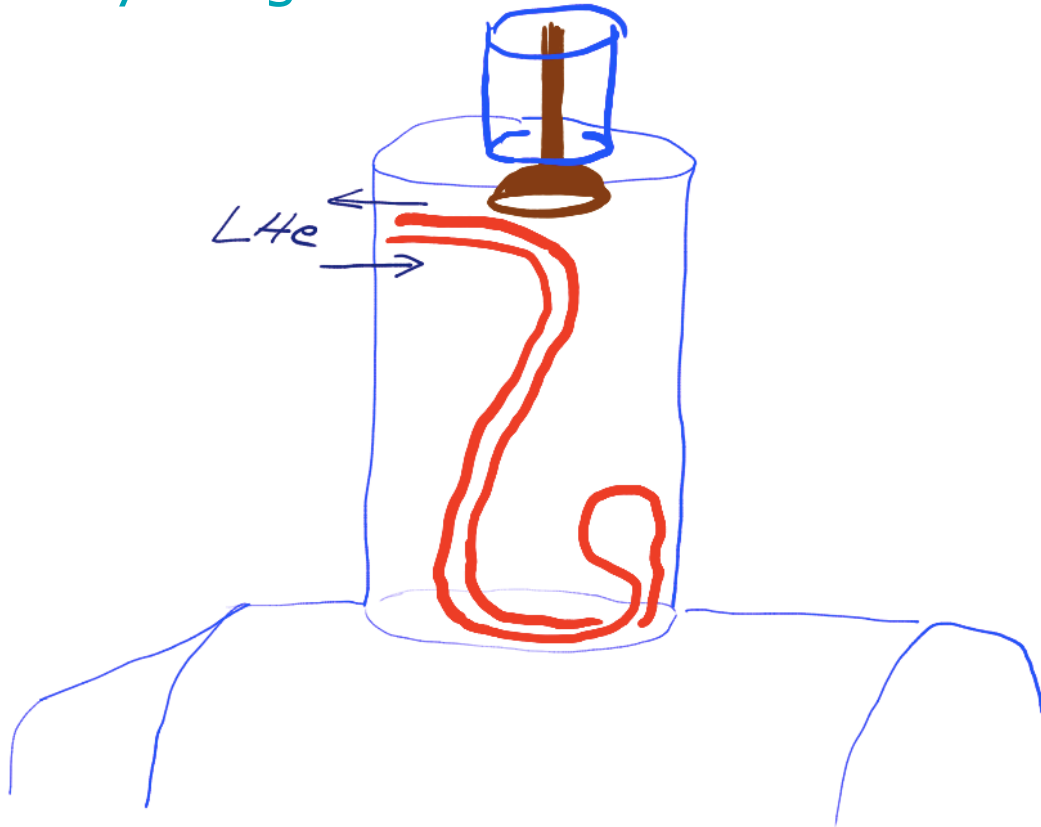


**but:** cooling + construction to be checked

## Next steps – please comment

- either: further optimization of "broadened hook"-design if there are no constructive obstructions
- then especially: thermal load studies
- or proposal: study of a "closed-loop"-coupler consisting of a single bent pipe with LHe-flow
- Assistance according manufacturing limits needed

## Very rough sketch of the idea



aim: describe coupler loop as sequence of circular bends

**but:** construction/manufacturing to be checked – please comment