

## 1 Questions from Dirk Lucas

- Misunderstanding regarding the HFP validation vs. the statement that it has been implemented in NCFD:
- Use of "we" in the text
- References numbering
- Use of Kelvin instead of Celsius
- Lack of comparison with NEPTUNE\_CFD

## 2 Questions from Emilio Baglietto

CFD :

- Quantity of boiling in hot channels in french PWR ?
- Grid / assembly type for 8 grids / 50 cm ?
- Pre-CHF conditions for Bloch image ?
- More details on IAC Ruyer & Seiler ?
- Condensation of Ranz & Marshall : droplets evaporation
- Influence of Added Mass in interfacial forces ? Test of NCFD computation without ?
- Discussion on Tomiyama lift ? Laminar only ?
- Lubchenko MIT PhD → 2 phase wall function, analytical → check conclusions ?
- Scalability of R12 → PWR regarding CHF/ DNB ? Any new insight on this ? Regarding the ebullition cycle ?
- Potential error on DEBORA  $\phi_w$  → discussions with experimental team ?
- Moving measurements section → similar but not equivalent in 2 phase flow ?
- Discontinuities in NCFD results presented ?

- Li et al. test providing lower  $T_w$  than Hibiki & Ishii while theoretically having less sites ?
  - Discussion regarding Li et al. vs. Hibiki & Ishii NSD  $\rightarrow$  fundamentally different (potential cavities vs. actually active sites) ? Discussion on nucleation site interactions
  - Li et al only for water ??
  - Li et al only counts nucleating sites ?
- HFP :
- Kurul & Podowski originally pool boiling ?
  - Use Gilman Mind-Map of HFP for representation of her work
  - No inclusion of the microlayer in the growth term ? Subsequent validation of HFP at low pressure ?
  - Matching bubble growth at low pressure without ML term ? Surprising / Unexpected ?
  - New growth law of interest for low pressure boiling ?
  - Adaptive  $\delta$  in new growth model ? Fitted or computed ?
  - Lift-off diameter in boiling term  $\rightarrow$  discussion vs. inception diameter because extra growth comes from liquid evaporating ? Double counting of the heat to the fluid + to heat change ? Only microlayer for growth after inception ?
  - Large single-phase convection term  $\rightarrow$  robustness of model (finding by Gilman & Komma) ?
  - Developing new model before testing any ?

- Contact angle in Kommajosyula ?
- Nearly no comparison on DEBORA case for HFP validation ? Only one case ?
- Single-phase region in HFP test of DEBORA ? Bulk properties of water ?
- Wall-adjacent cell values instead of bulk values ?
- Disagreement with Richenderfer  $N_{sit}$  measurements → explained by non-prototypical surface → lower number of sites
- Richenderfer & Kossolapov : developing TBL experiments → not really treatable with fully developed flow correlations