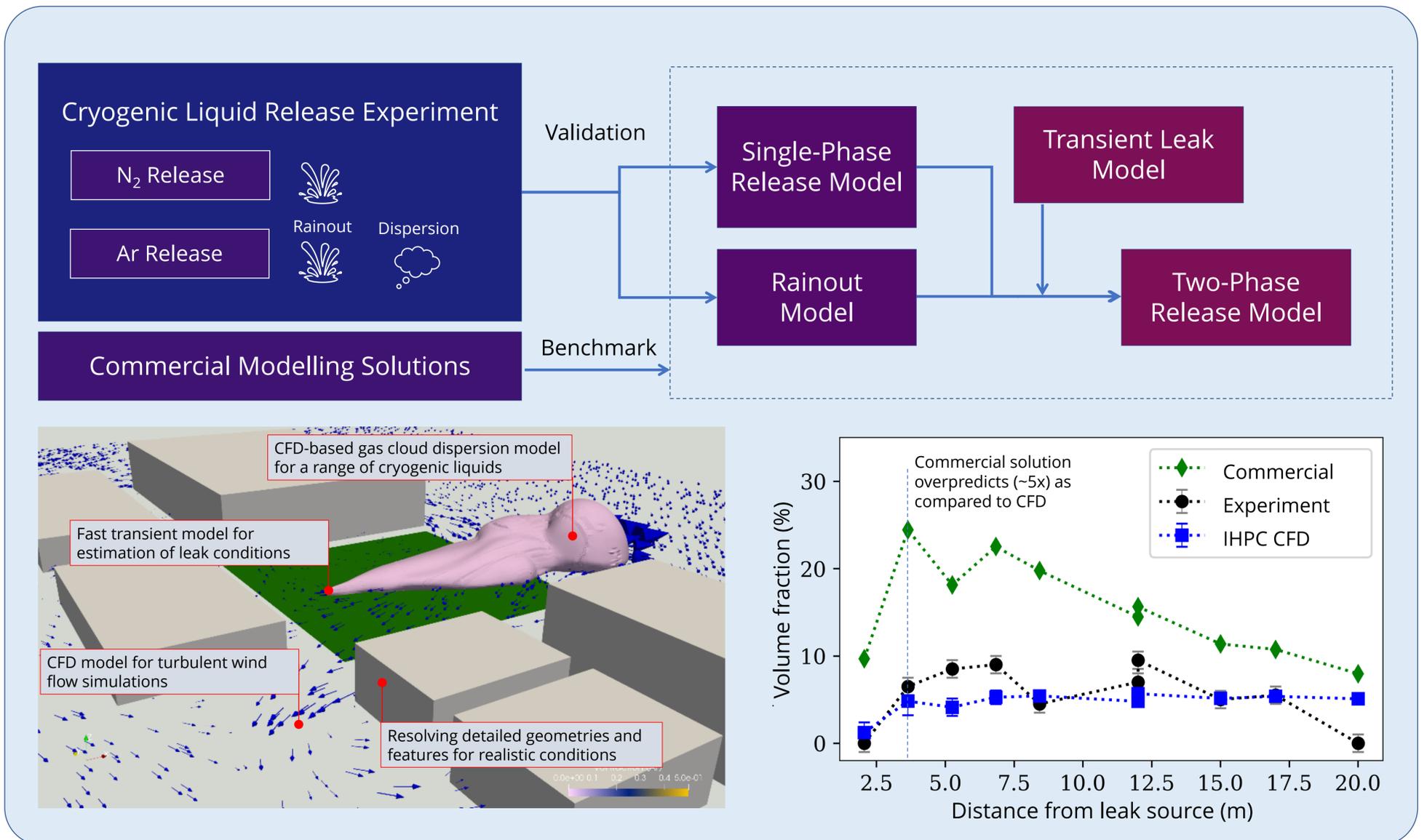
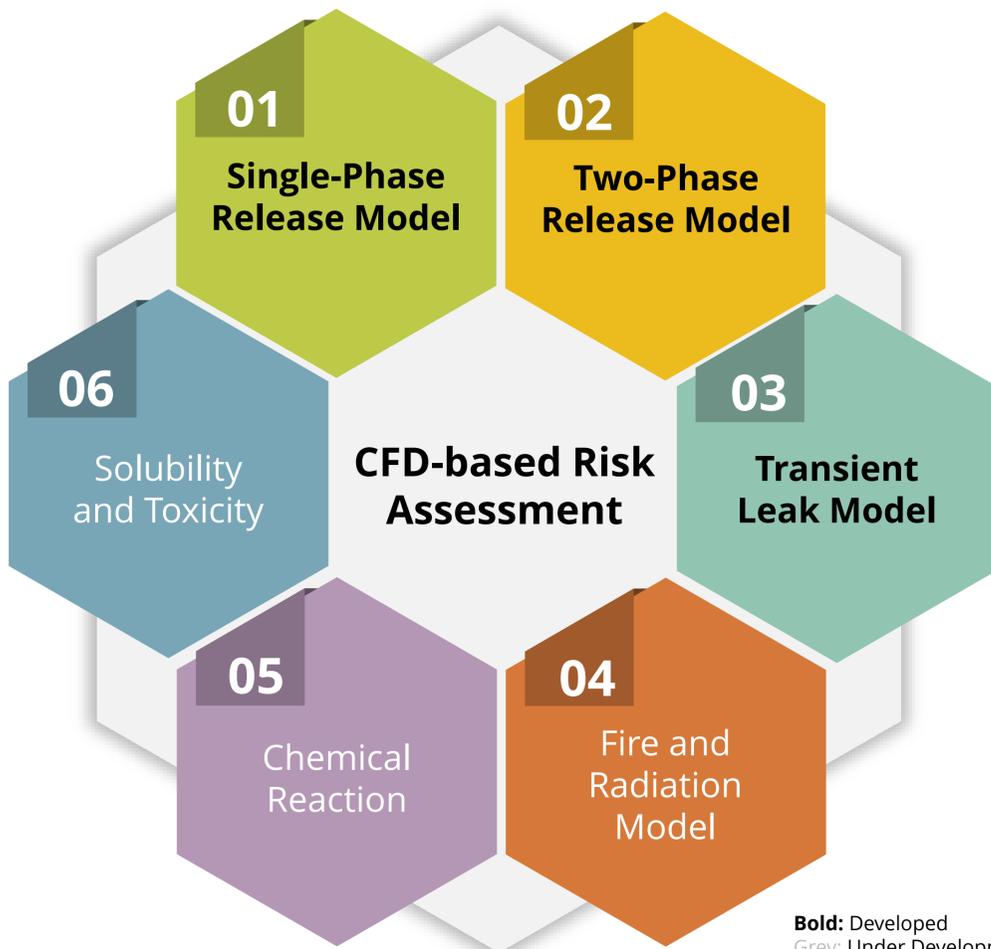


# CFD-based Risk Assessment Framework for Cryogenic Liquid Leakages

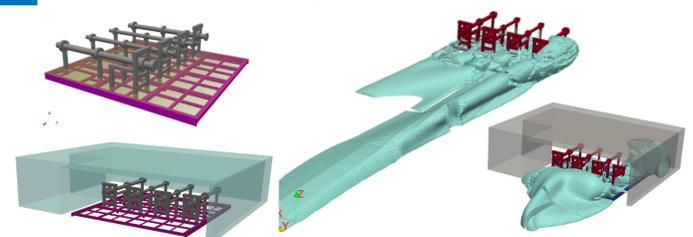
## Physics Models Development, Validation and Benchmarking



## CFD-based Risk Assessment Framework and Use Cases



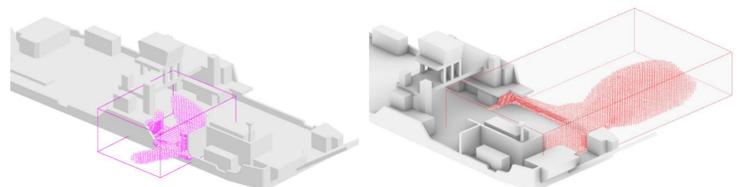
### 1 LNG Bunkering Station



Application of CFD approach for risk assessment of LNG leakages during bunkering operations. Enclosure design helps to contain the plumes\*.

\*Nguyen *et al.*, Reduced Order Models for Uncertainty Quantification of Gas Plumes from Leakages during LNG Bunkering, *Journal of Loss Prevention in the Process Industries*, 76 (2022) 104724.

### 2 H<sub>2</sub> Leakages in Fuel Cell Powered Vessel



Risk assessment of leakages in a pilot fuel cell powered vessel. CFD guided design of vessel for critical scenarios (burst disc, vent mass, leaks from fuel cell module and manifold).

### Acknowledgement

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