Introduction

- A new method to generate bubbles is characterized.
- Slug flow is generated in the T-junction of a microbubble injector.
- Capillary regime → Performance independent of the microgravity level.
- Characterization of the injector consists in the analysis of bubble frequency and size distribution.
- PC control and data acquisition system have been designed.

Experimental set-up

- Various components and their functions are listed and diagrammatically represented.

Results

- A novel microbubble injector has been characterized.
- Information obtained is relevant for operation in microgravity conditions.
- Slug and annular flow have been observed.
- Performance under different working regimes has been analyzed.
- Bubble generation frequency saturates for high gas injection flow.
- Saturation frequency follows a simple linear scaling with the liquid injection flow.
- Slope of $\xi$ vs. $Q_g$ appears to be independent of $Q_l$.
- Scaled bubble diameter decreases linearly with nominal (We$^{1/2}$).

Conclusions