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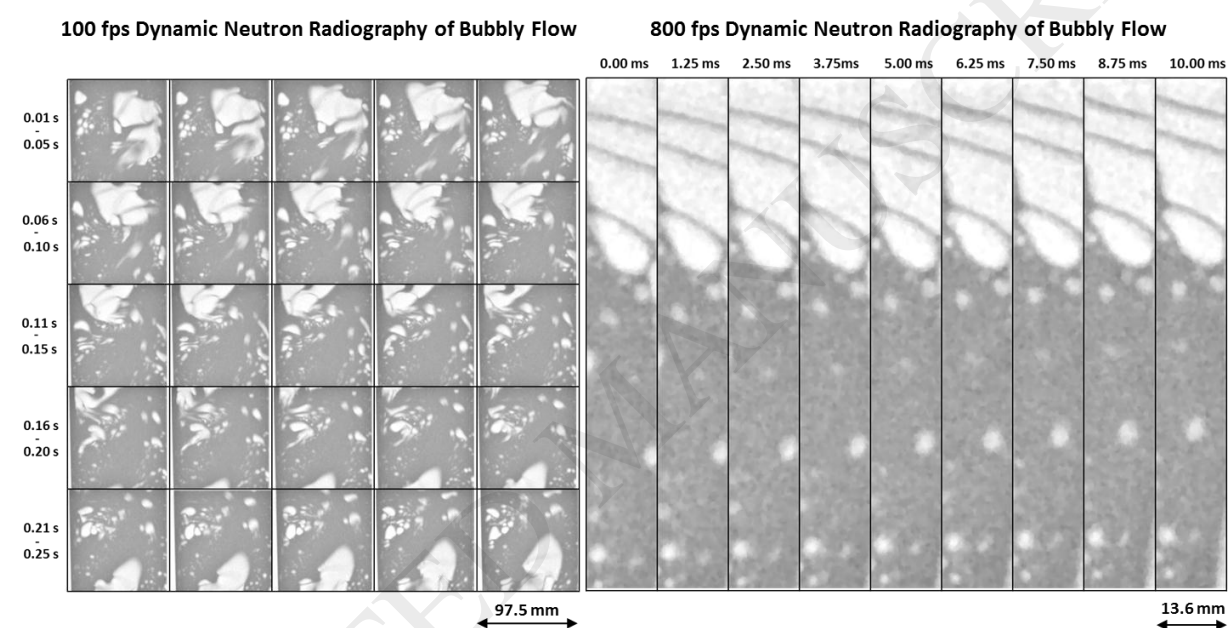
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Graphical abstract



The highlights of this publication are:

- Demonstration of up to 800 frames per second dynamic cold neutron radiography
- Application of such technique for non-periodic (transient) process of bubbly flow in water.
- Potential for quantification of (i) instantaneous gas volume fraction in dynamic two-phase flow and (ii) instantaneous gas phase velocimetry

Abstract

We have demonstrated dynamic cold neutron imaging of air-water two-phase flows up to 800 frames per second imaging rates. This has been achieved by using a high-efficiency (relatively thick) scintillator screen in combination with the highest available flux on a continuous spallation source and a high-speed sCMOS camera. This combination renders the spatial resolution to relatively modest value of about 0.5 mm, which is nevertheless sufficient for resolution of bubbles of the size

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