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The interaction of two gas bubbles with a planar shock wave[1]
STEPHEN SHAW, PETER SPELT, OMAR MATAR, Imperial College London —
We consider axisymmetric and fully 3D numerical simulations of the interaction of two gas bubbles with an initially planar shock wave in water. Modelling the fluid in both phases using the compressible Euler equations together with appropriate equations of state, the resultant hyperbolic systems are solved by employing a combination of a third order ENO-Roe scheme for the spatial derivatives and a third order TVD RK scheme for the temporal derivatives. The interfaces between the different phases are tracked with a level set function in conjunction with a Ghost Fluid Method. Test results are shown to compare very well with previous work on a single bubble. The impact of the distortion of the shock front on the resultant dynamics of two bubbles is studied and its dependence on the initial shock wave strength, initial separation distance of the bubbles, and the ratio of the initial bubble radii elucidated.

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Omar Matar
Imperial College London

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