Numerical Simulation of Water-ice Formation Around a Pipe

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Abstract
The novel approach in computing the mass transfer across the interface in a boiling flow [Cukrov, A., Sato, Y., Boras, I. i Ničeno, B. (2021). Brodogradnja, 72 (4), 141-164. https://doi.org/10.21278/brod72408] is now applied to a mass transfer problem that involves solidification of a water-ice. The governing equation set is comprised of mass, momentum and energy equations, defined on a per-phase basis. In addition, the conjugate heat transfer has been taken into consideration inside the solid material of the pipe. The solution to this problem involves the analysis of the temperature field inside the ice layer, and the evolution of the ice-water interface thorough the simulation process.