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# The Use of Experimental Measurements for the Validation of Transient Models

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A b s t r a c t

Experimental research of pressurized hydraulic transients is conditioned to pressure (water-hammer) waves, which are usually characterized for having high celerity values and involving high pressures. Reservoir-pipe-valve systems are the usual experimental rigs to carry out such analyses. Flow rate and pressures at specific points of the pipe system are standard measurements from which water-hammer solvers are consequently verified and validated. During this webinar first a brief introduction is provided concerning the standard numerical model and the subsequent experimental validation approach. Then the talk evolves to more advanced numerical models, where not only the transients in the fluid but also their interaction with the structure are considered. Additional lab measurements are therefore required to capture the associated structure behaviour which, additionally, involve transient waves propagating even at a higher velocity. Finally, some remarks are provided pointing out the importance of a good understanding of the physical phenomena, especially in terms of time-scale, to experimentally capture fast transient phenomena in pressurized pipe flows.

**Keywords:** pipe systems, pressurized pipe flows.

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