

Flow in Pelton turbines



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Content

- Introduction and motivation
- Experimental setup and results

Introduction and motivation

Pelton turbine

- First patented in 1880
- A lot of confidential knowledge
- No standardized design method
- Potential to uncover new knowledge



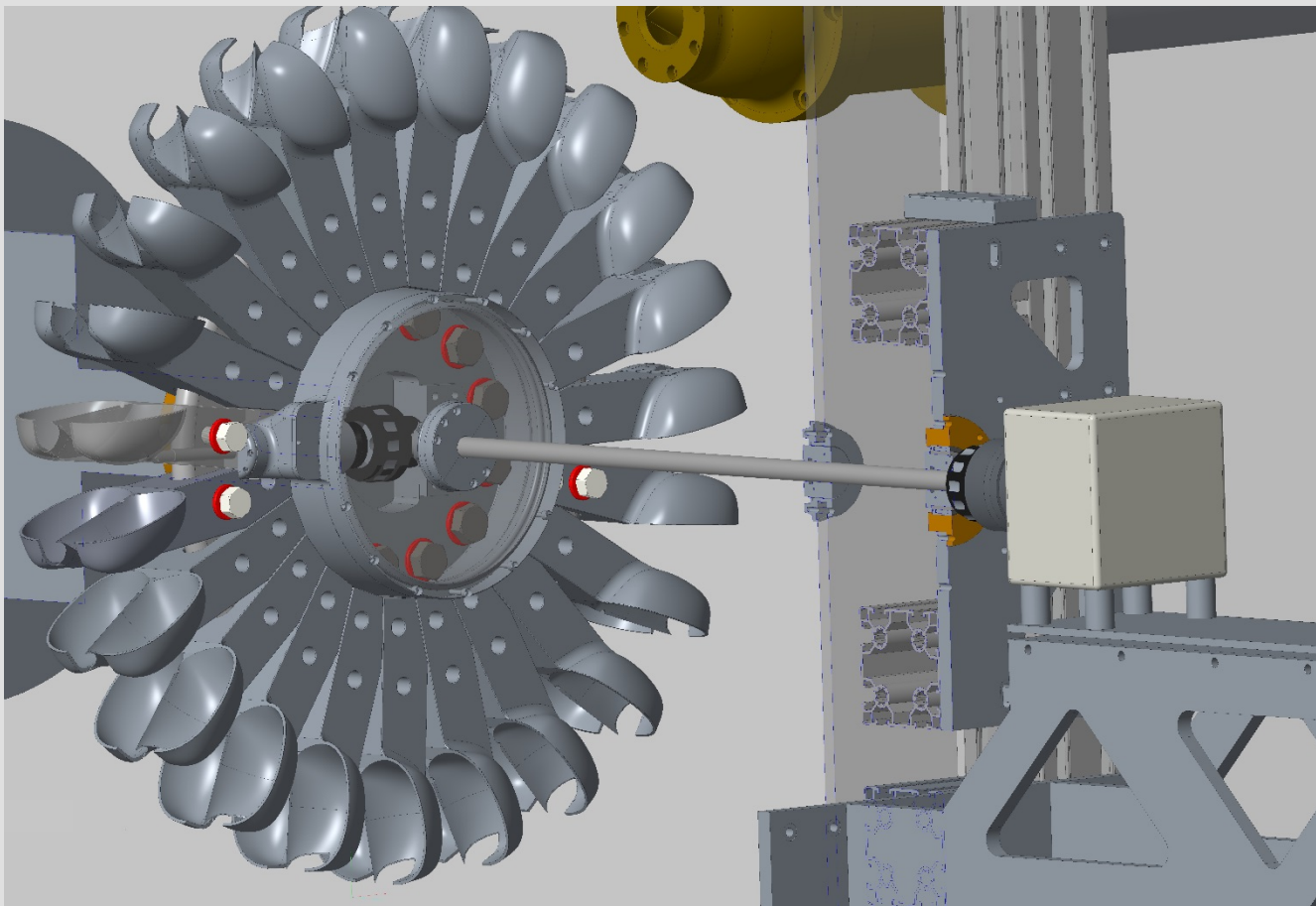
Experimental setup

- External visualization of the flow



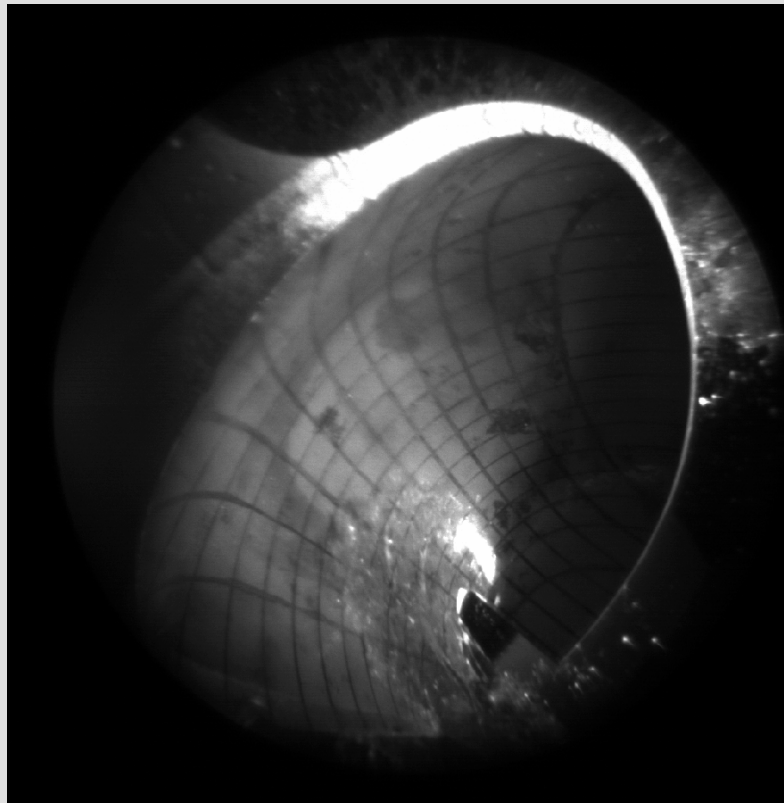
Experimental setup

- Experimental setup for internal visualization



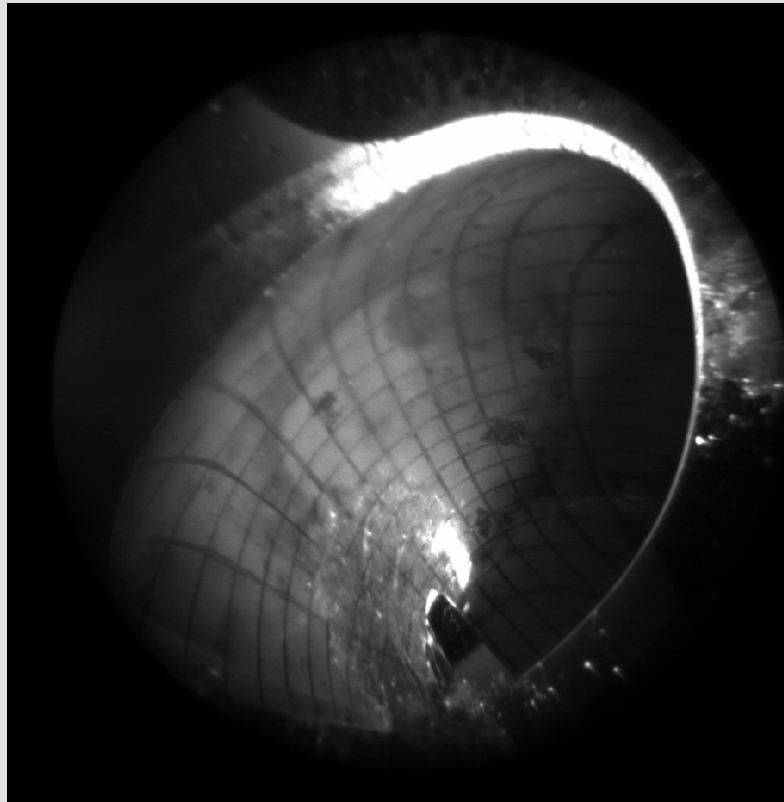
Results

- Initial internal visualization



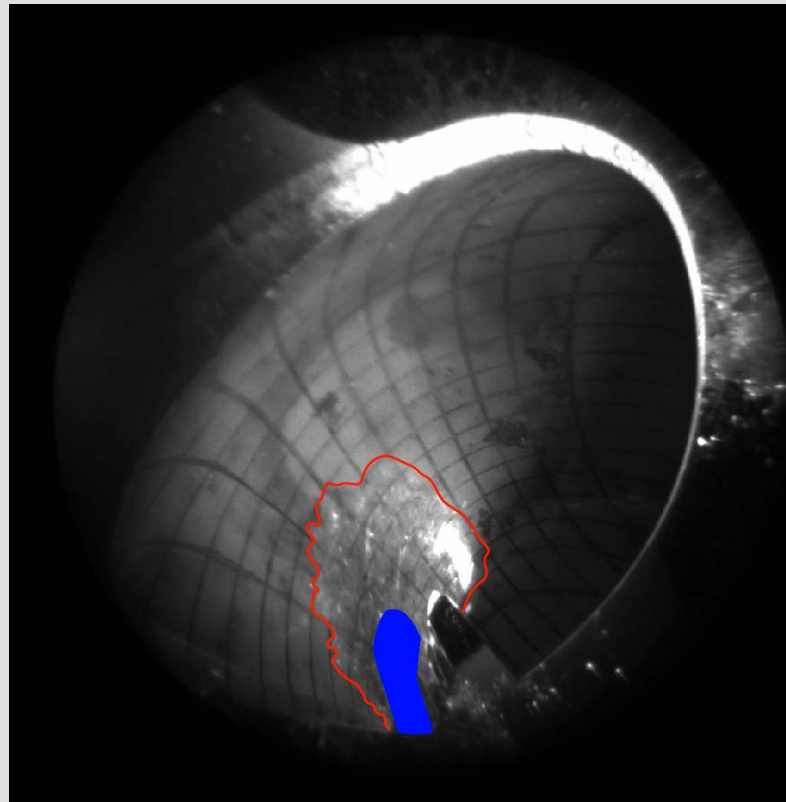
Results

- Stabilized internal visualization



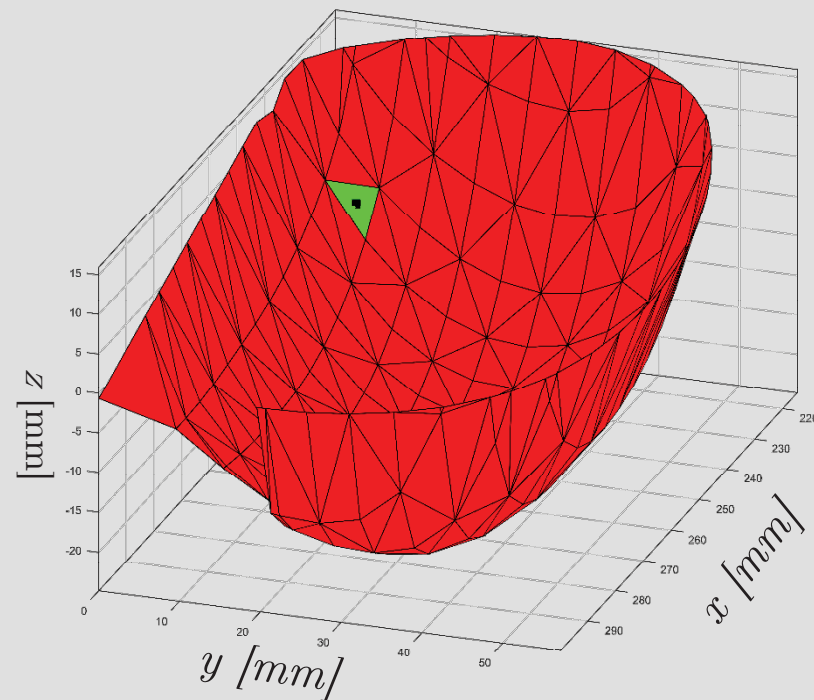
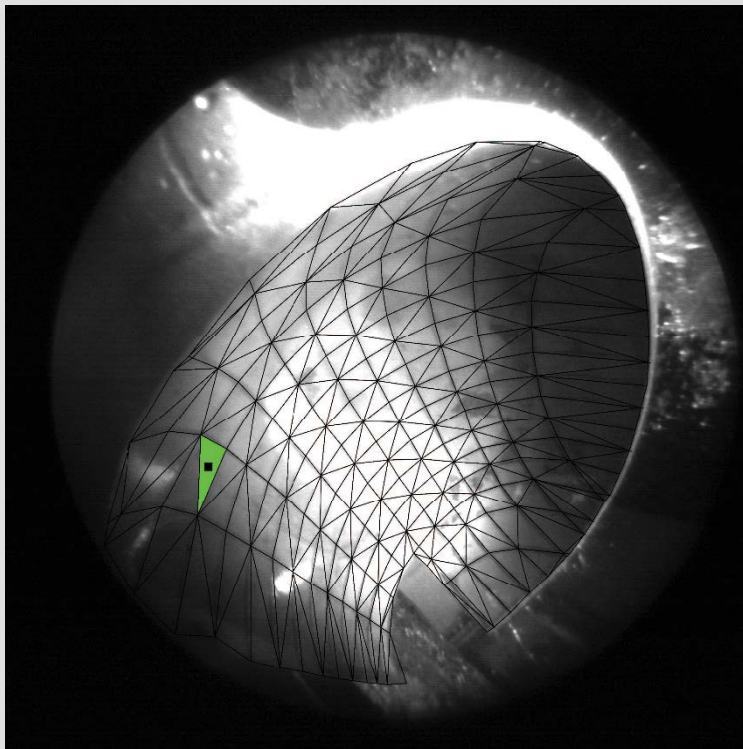
Results

- Stabilized and traced internal visualization



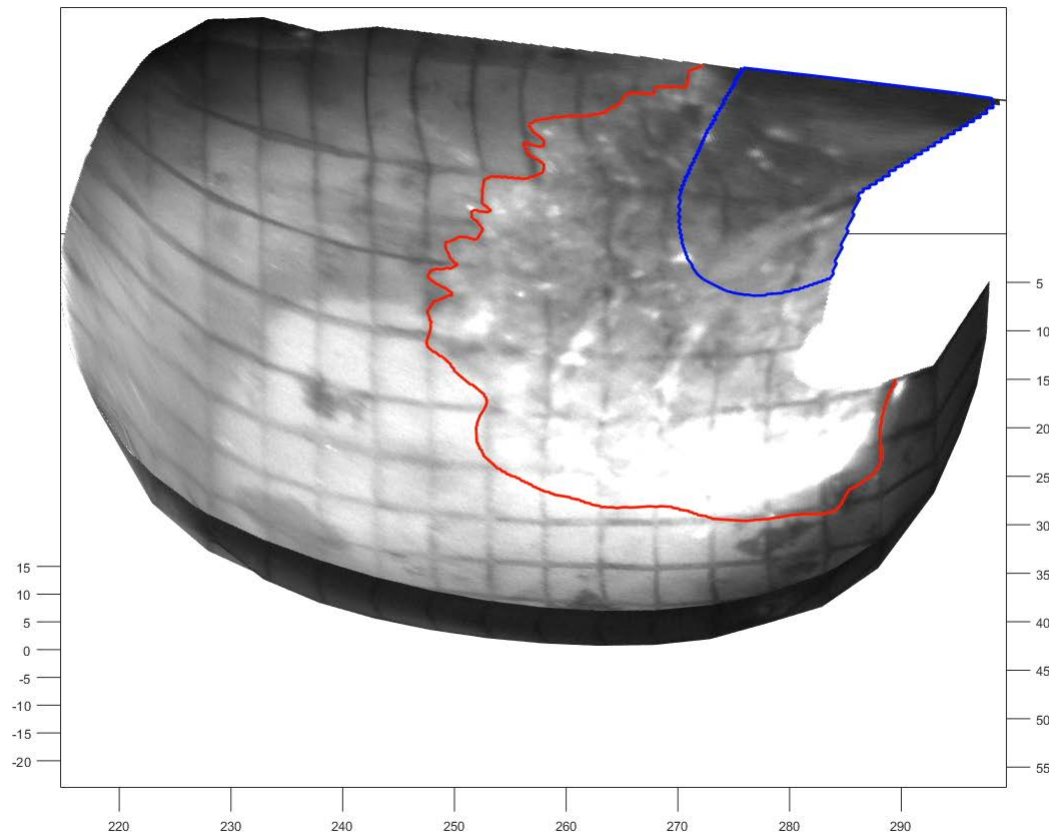
Results

- 2D to 3D translation of internal visualization



Results

- 3D-ified internal visualization



Novelty of the results

- Trace of the water propagation in a rotating bucket
- 3D coordinates of the water propagation

Questions?