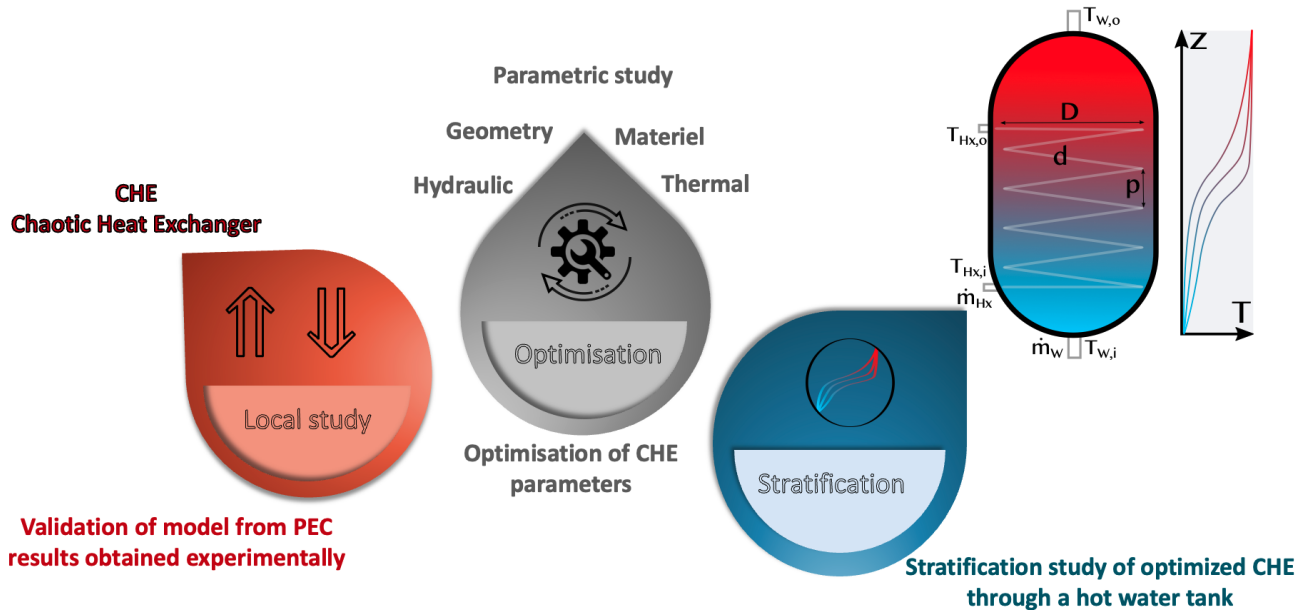


## Experimental investigation and performance optimization of the chaotic heat exchanger

### Context and objectives :

Within the framework of an ANR-Chaire Industriel, at the beginning of 2021 IMT and elm.leblanc launched the Corenstock Industrial Chair to address issues in energy and digital transition in the domestic heating industry. The principle of Corenstock Chair (Lifecycle design systemic approach for energy efficiency of water heating and storage devices) is to consider an equipment of the everyday-life to be optimized and used as a model for the transformation of an entire industry. The objective is to present within four years a demonstrator for an innovative hot water tank, more energy efficient, more sustainable and more connected to its users. The project is however not limited to the design of a new domestic hot water tank : it covers the transition problematics of the heating industry as a whole. In line with new business models development, the underlying interest is to redefine the dedicated design methodologies, to generalize sustainable production and end-of-life recovery to implement new economic balances.

In this context a postdoctoral position will be open in order to optimize the performance of a chaotic heat exchanger (CHE) developed in the framework of Corenstock Industrial Chair. At the second time a thermal stratification study of optimized CHE inside of a storage unite will be considered. The Postdoc candidate will be required to deal with the following tasks :



**Skills/profile :** A candidate (F/M) with an experimental expertise in fluid mechanics and thermal engineering is welcome. Additional expertise in conjugate-heat simulations with OpenFOAM is highly desirable.

**Working environment and application :** The work will be carried out in Energy and Environment Center of Institut Mines Télécom Nord Europe at Douai, France. The work will be supervised by Amir Bahrani ([amir.bahrani@imt-nord-europe.fr](mailto:amir.bahrani@imt-nord-europe.fr)). The project is funded by the ANR chaire Industriel CORENSTOCK. Interested applicants should send their CV, description of their research experience, and contact information of three referees to supervisor.

**Start date and duration :** The starting date shall be before June 2023 for a duration of 18 months.