

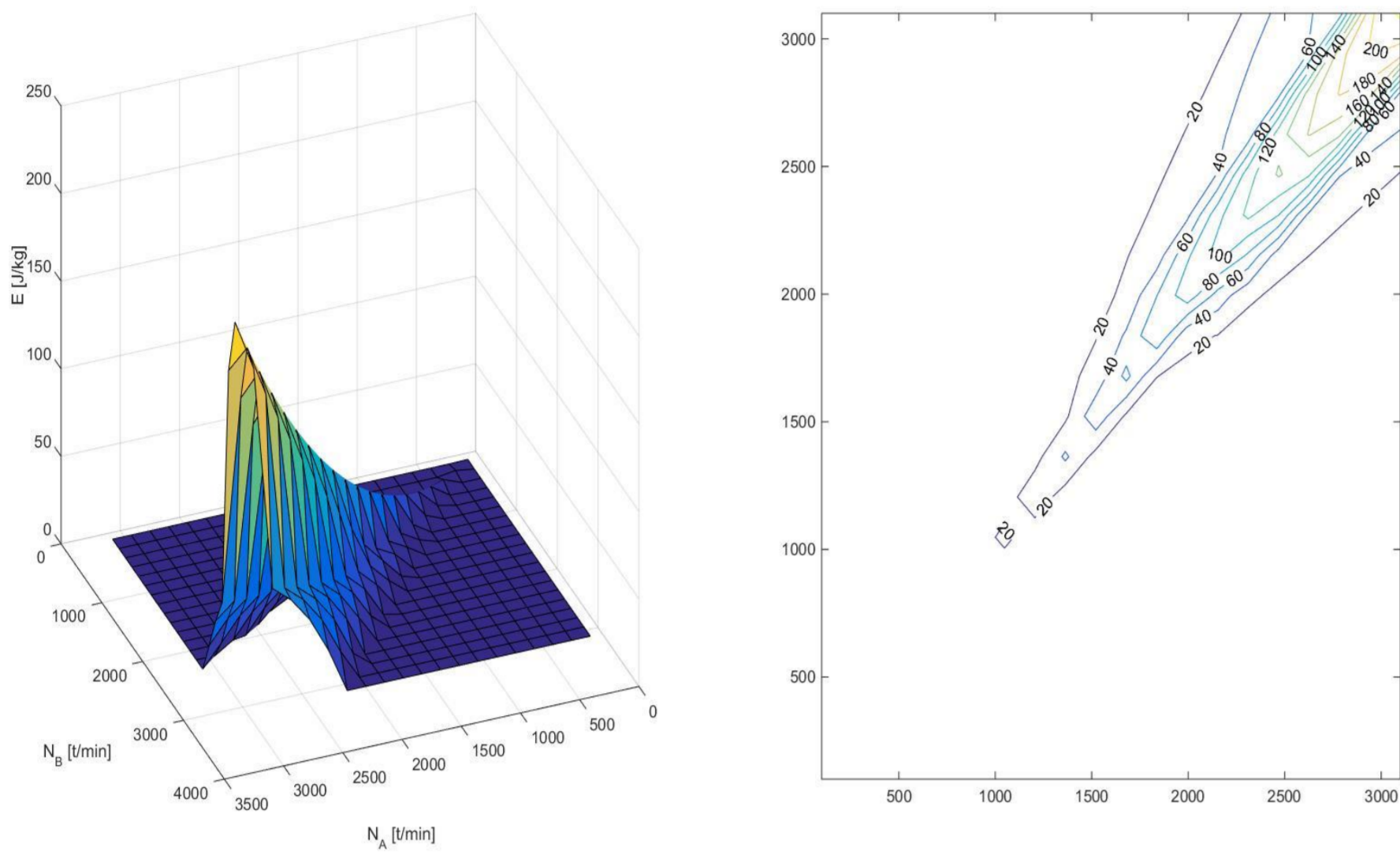


# MICROTURBINE CONTRA-ROTATIVE

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## OPTIMISATION DES ROUES

### II - INTERFACE GRAPHIQUE



- Réglage des critères de rendement des roues.
- Réglage des plages de vitesses, d'énergie et de débit.
- Affichage de l'énergie transmise, rendement, etc.

### I - MODELISATION MATLAB

```

% Calcul du rendement
% Définition des constantes
Lambert_B = 1.04;
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Lambert_B3 = 1.01;
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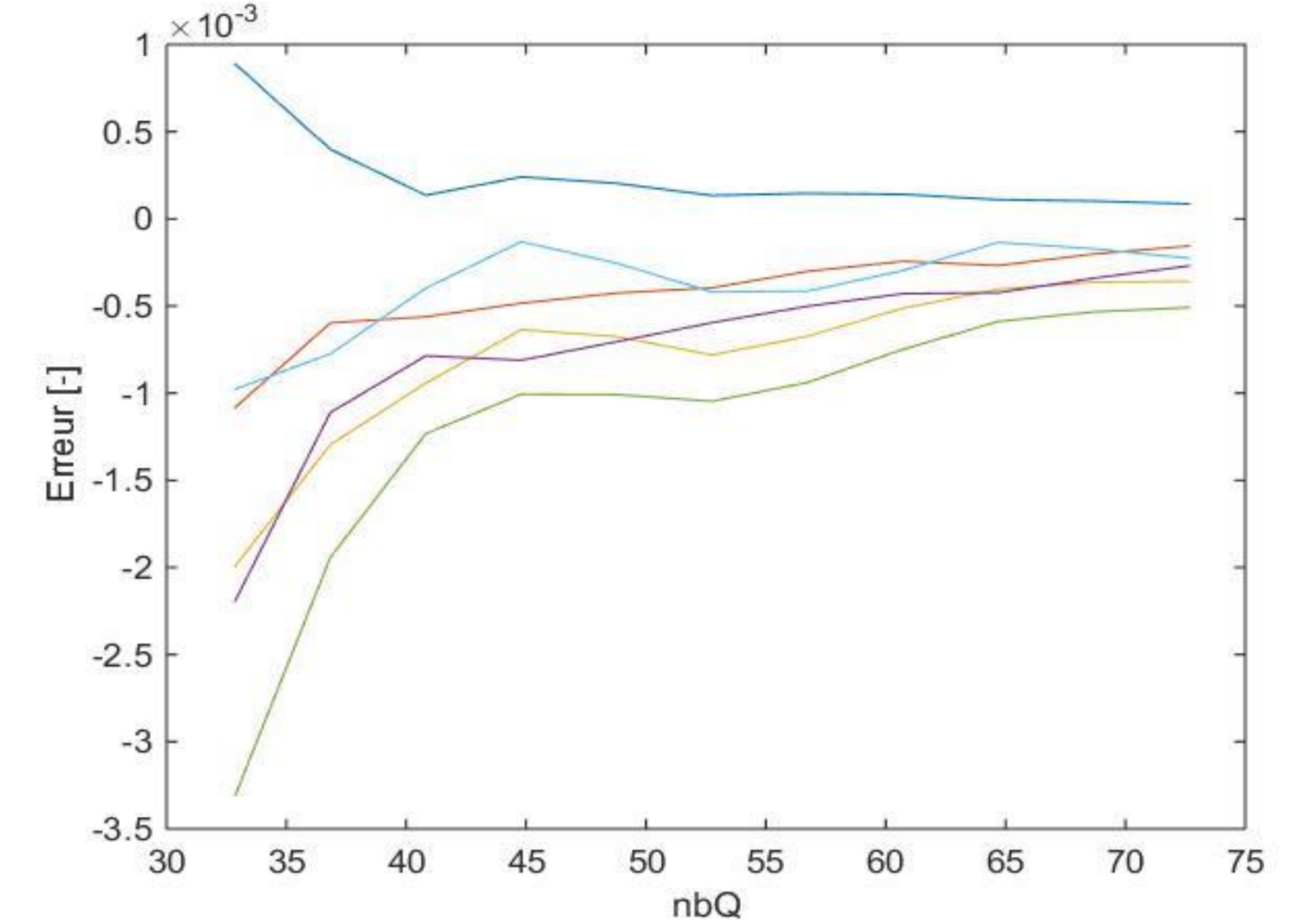
- Calcul du débit, du rendement et de l'énergie en fonction des vitesses des roues.
- Calcul des vitesses des roues, du rendement en fonction de l'énergie et du débit.

**CONCEPT:**

Le réseau d'alimentation en eau potable suisse utilise des conduits à hautes pressions. Certaines infrastructures sont obligées d'être équipées de reduteurs de pression pour protéger leurs installations.

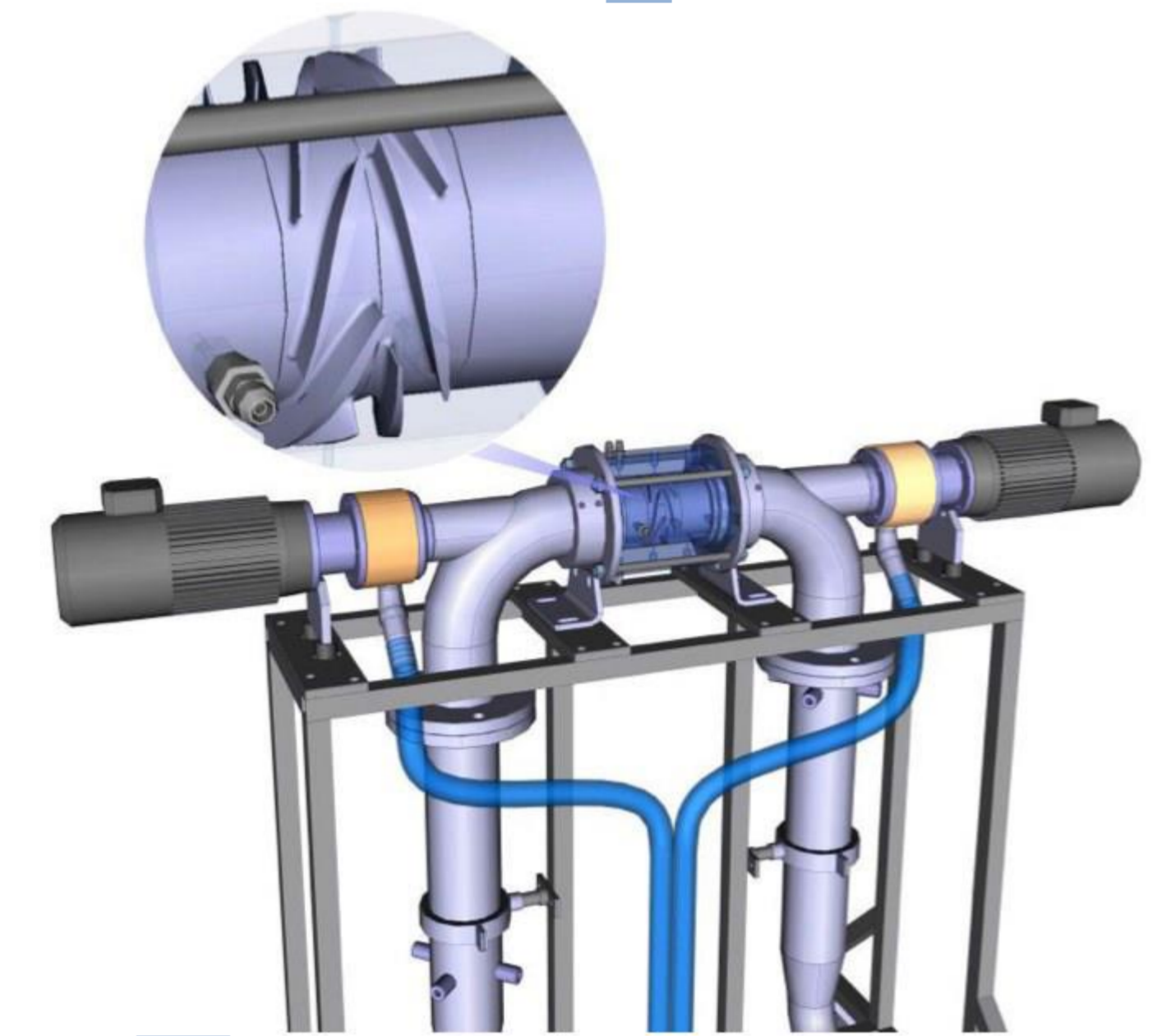
La microturbine contra-rotative est un moyen simple et écologique pour récupérer de l'énergie tout en fournissant la charge attendue à la sortie du réseau.

### III - OPTIMISATION

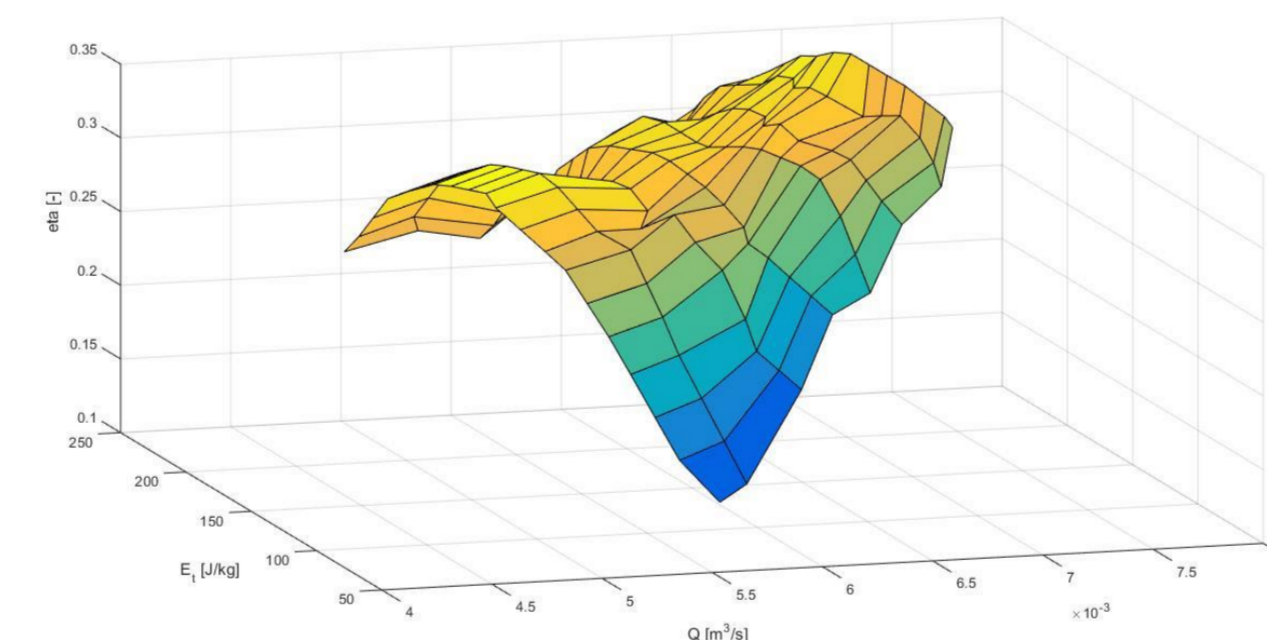


- Optimisation des angles en fonction d'une plage de débits donnée.

### IV - FABRICATION & TEST DE LA TURBINE

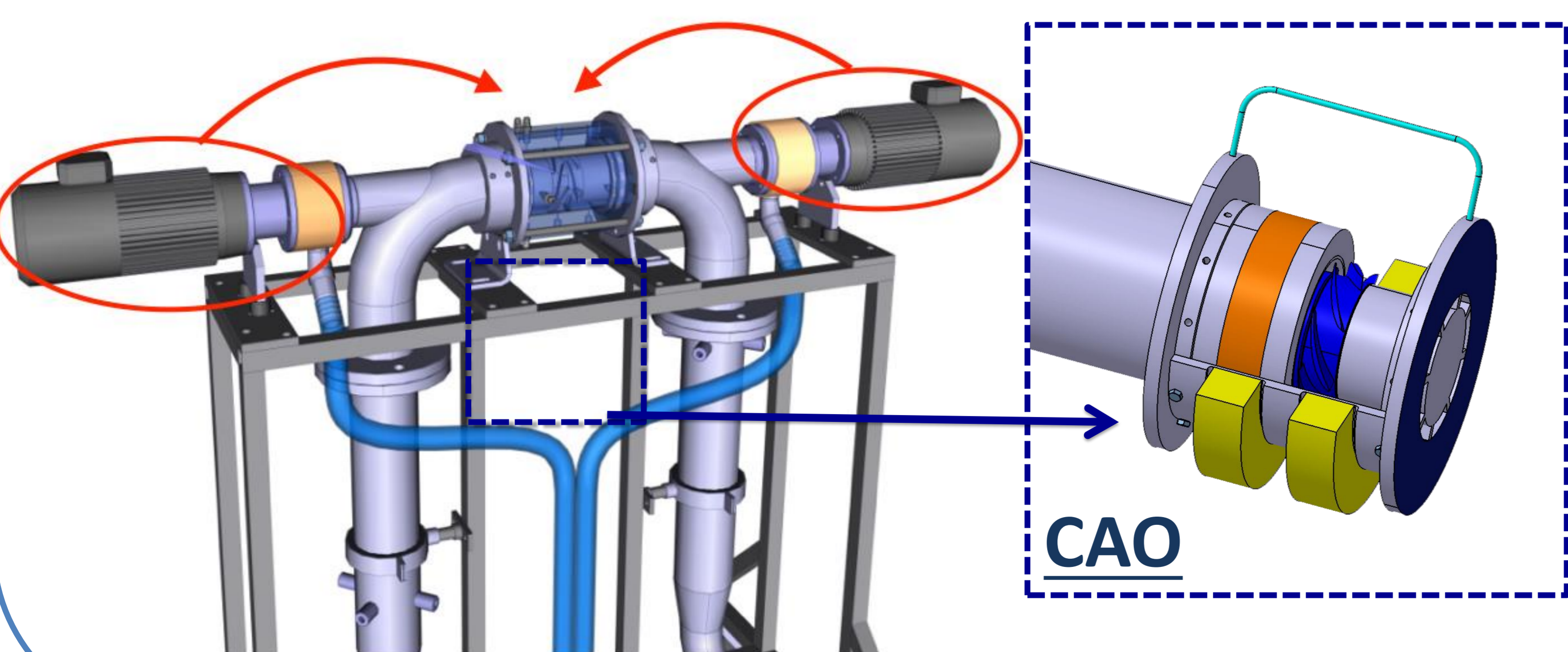


### V - ANALYSE DES RESULTATS



- Objectifs:**
- Comparer le modèle numérique et les mesures expérimentales
  - Déterminer si le modèle numérique correspond aux résultats des essais.

## OPTIMISATION DE L'ESPACE: DIMENSIONNEMENT D'UN PALIER HYDRODYNAMMIQUE



- Objectifs:**
- Se débarrasser de l'encombrement des arbres en recentrant les génératrices autour des roues.
  - Guider en rotation les deux rotors en l'absence d'arbres.
- Solutions:**
- Utilisation de palier radial et d'un palier axial.

### PLAN 2D

