

## 1 1 HIGHLIGHTS

- 2 1) Volume and biomass concentration are the more relevant variables for loss  
3 minimization
- 4 2) The batch reactor was successfully simulated using PINN
- 5 3) PINNs were not capable of appropriately simulate reactors with volume  
6 variation
- 7 4) Strategies for simulating reactors with volume in transient state are suggested