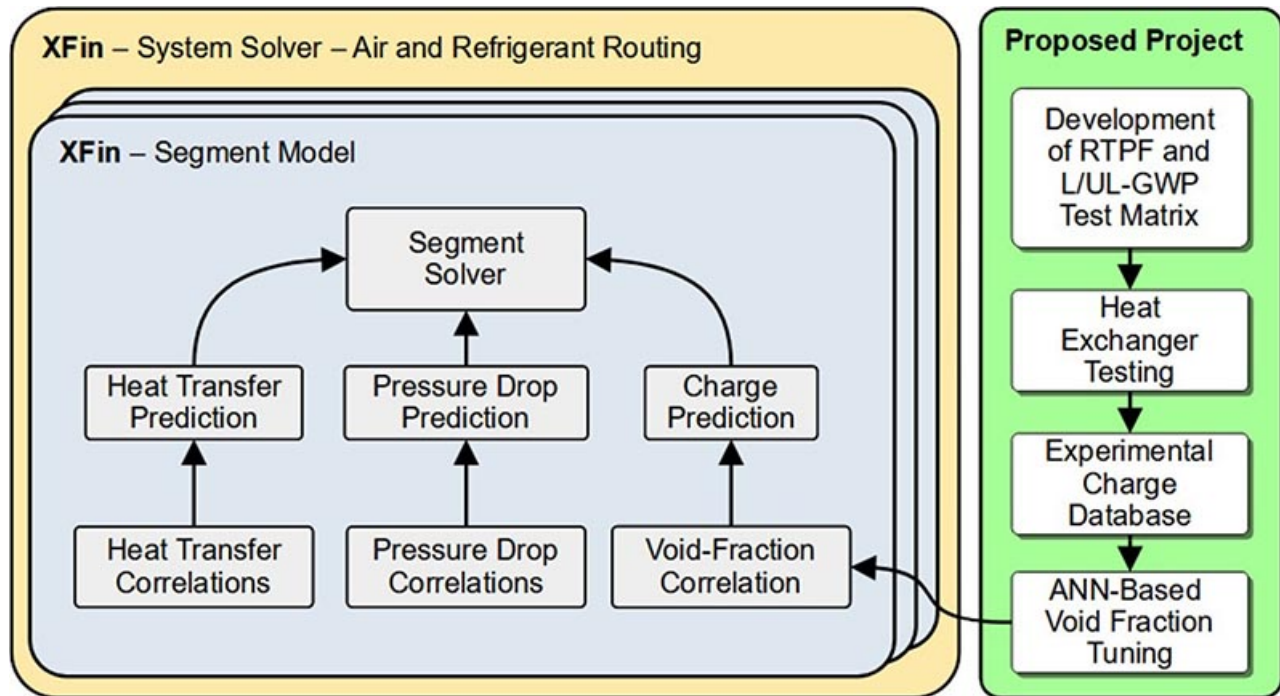


---

# Physics-Based Charge Models for Low-GWP Refrigerants in Heat Pump Applications

*Project Number 22-03-02*



---

## PROJECT TEAM:

Students: Amr Abdelmoneim; Abraham Lee  
Faculty: Christian Bach; Craig R. Bradshaw

---

## Goal

Project aims to increase fin-tube heat exchanger charge models' prediction accuracy to better than 10% for low-GWP refrigerants through an experimentally validated void fraction model

## Outcomes/Deliverables

This project will deliver: Refrigerant charge data set for a member selected subset of heat exchangers, and void-fraction models validated for select heat exchangers and refrigerants