Objective:
• Design and develop a small-scale, low-cost flammable refrigerant leak detector based upon bifurcation-based threshold sensors.

Problem
• There are few, if any, viable, low-cost flammable refrigerant leak detection systems on the commercial market today.

Expected Results:
• A field-ready prototype sensing system.
• Clear, benchmarked sensor performance metrics.

Approach and Research Tasks:
1. Design and synthesize functional material systems that have tailored responses to the flammable refrigerants of interest.
2. Develop bifurcation-based resonant mass sensors.
3. Evaluate the selectivity and sensitivity of the resultant sensing system.
4. Benchmark pertinent performance metrics against other technologies designed for refrigerant leak detection.

Schedule

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<th>Tasks</th>
<th>Q1</th>
<th>Q2</th>
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PIs: Jeff Rhoads, Bryan Boudouris, George Chiu, and Jim Braun
Low-Cost Flammable Refrigerant Leak Detector

Technical Strategy:
• Leverage a prior investment by the Department of Homeland Security and Purdue University to achieve a research pace and scale of development not traditionally possible within the confines of a CHPB project.

Technology to Market Strategy:
• Focus on “quick wins” to develop a technology that can progress to market in <36 months.