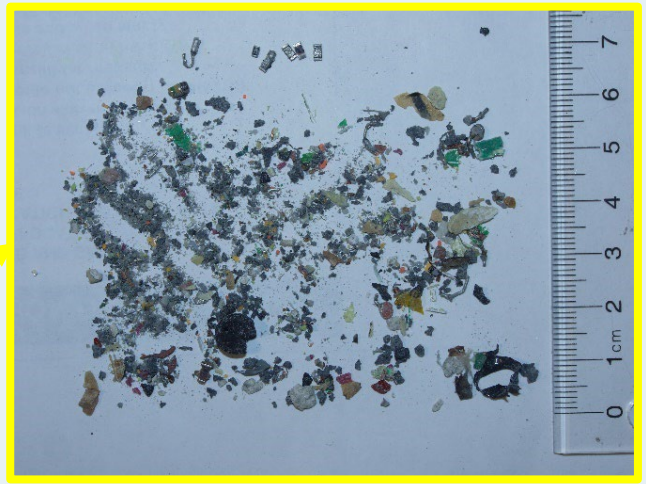
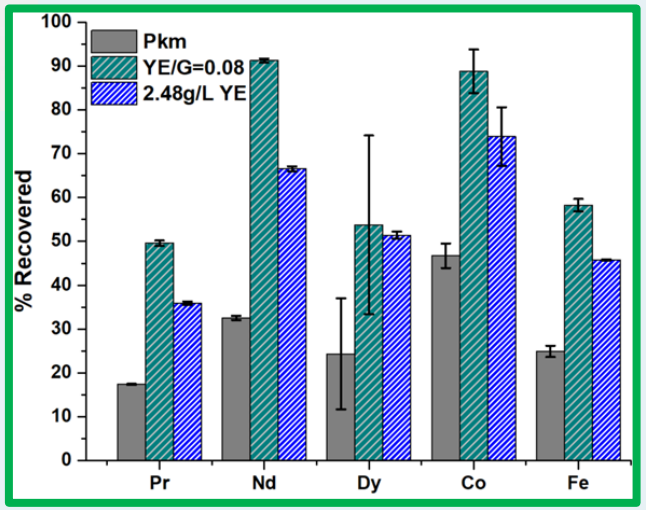
E-CYCLE EXPRESS: Mobile Recycling for Rural Areas

A modular, mobile bio-chemical facility to produce high-value metal concentrates that can…

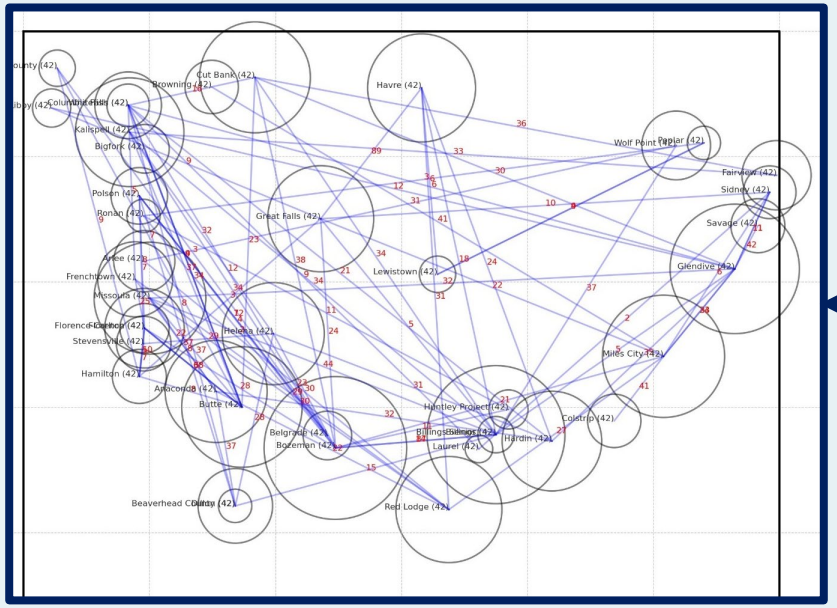
1) Use rapid expansion of CO_2 to disaggregate printed circuit boards (PCBs):



2) Use microbes to produce safer, organic acids to promote high metal recovery, previously shown effective by our team with other e-waste:



3) Use existing social networks to accumulate e-waste in key hubs for processing (estimated hubs/towns in Montana based on traveling H.S. sports in 2023):



Phase 1 Proposed Plan and Team:

1. Demonstrate novel processing of multiple PCBs
2. Demonstrate metal recovery via bioleaching
3. Develop initial design for the mobile facility
4. Conduct an initial assessment of relevant regulations
5. Assess the feasibility of social networks to collect waste
6. Engage with underserved communities

Montana State University: Dr. Ryan Anderson (Chemical Eng.), Kristin Blacker (Director, Office of Sustainability), Dr. Ross Carlson (Biological Eng.), **Rockburst Technologies:** Cliff Edwards (PCB Processing), **Idaho National Lab:** Dr. David Reed (Senior Scientist, Biomining expert)