**Nikhil Rathod and Colton Dudley Project Plan:**

The aims and objective of the project is to simulate a multi-component isotope diffusion system

We have found that a radioactive isotope of oxygen was used as somewhat of a tracer in order to see which side of the boundary aluminium oxide residue was forming.

We plan to understand the theory first, and then produce a computational representation of the system by implementing these steps:

1. Start with one species of vacancies and implement a solution for oxygen diffusion with no moving boundary in one dimension.
2. Implement the moving boundaries, and try to establish an analytic criterion, in terms of D, when there is an effective steady-state solution. Can the growth rate be predicted without moving boundaries?
3. Include charged species and interface charges in the model and study their effect on the growth rate.
4. Extend the model into 2 dimensions with diffusion acting across a grain boundary.