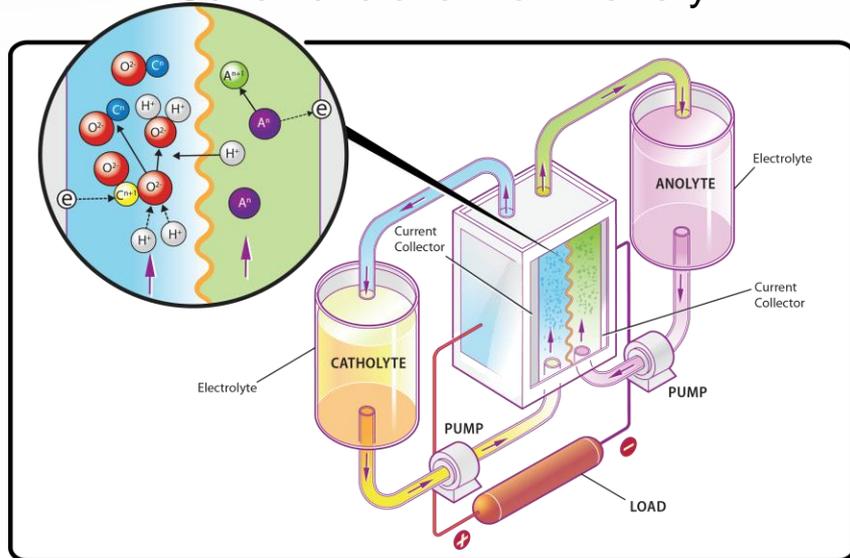


Flow Battery Modeling

Mario J Martinez, Sandia National Laboratories

mjmarti@sandia.gov, (505) 844-8729

Schematic of a Flow Battery



PURPOSE: The flow battery modeling task seeks to improve fundamental understanding and enable high-performing, low-cost designs of flow batteries through the development of mathematical models implemented for numerical simulation of chemically reactive flow and transport.

IMPACT: Models provide a virtual laboratory for design and optimization, enabling:

- Improved performance and safety
- Lower cost of battery development
- Development of new designs using new materials and configurations

How Models Can Improve Flow Battery Development

- Engineer improvements in existing designs
- Explore new designs on a computer, rather than in the lab.
- Explore the performance of new materials (e.g. electrolytes) and configurations (porous electrodes vs. activated plates)