Hydrogen in Energy and Information Sciences (HEISs)

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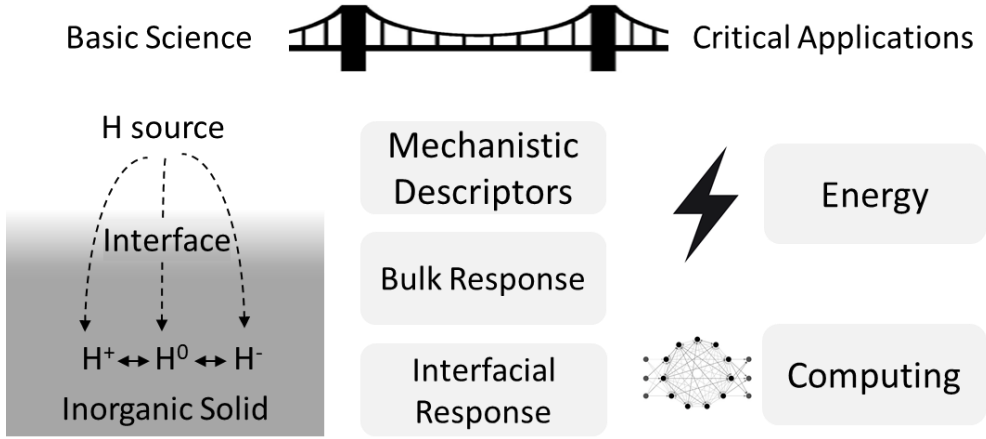
MISSION: To advance the fundamental understanding and discovery of multihued hydrogen *transport* in inorganic solids of earth-abundant elements, and of its *transfer* along and across interfaces within such materials, where 'hydrogen' includes all charge states of the element: H^+ (proton), H^0 (atom), and H^- (hydride ion).



https://heiss.northwestern.edu/

RESEARCH PLAN

Leveraging the interdisciplinary expertise of the team, which spans from chemistry to materials science, and applied physics to nuclear engineering, HEISs undertakes comprehensive studies to assess hydrogen (H^+, H^0, and H^-) transport through **bulk** materials, across and along solid-solid **interfaces**, and incorporation at gas-solid **surfaces**. HEISs exploits **novel stimuli** - light, stress, and extreme electric field - and **engineered defects** – in many cases resulting from these stimuli – as routes to manipulate and enhance hydrogen dynamics.

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