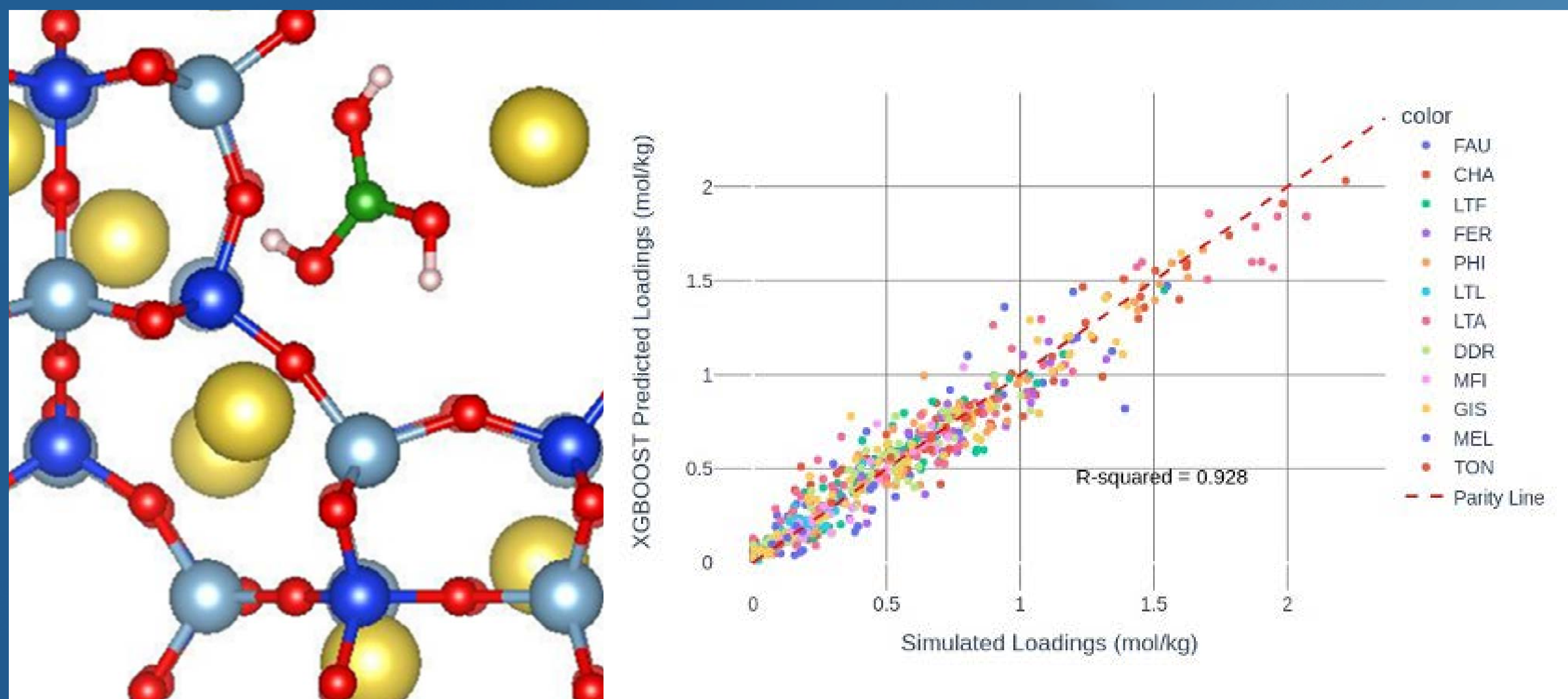


NETL USES MACHINE LEARNING METHODS TO DESIGN WATER TREATMENT SORBENTS

Using machine learning techniques, NETL designs sorbents synthesized from fly ash to treat water leaching from coal combustion waste.



Machine learning methods were used to design zeolite sorbents optimized for boric acid uptake.

Sorbents such as zeolites can adsorb harmful substances in coal waste leachate. However, new sorbents can be expensive and time-consuming to design and create.

- In this project, physics-based simulations were used to predict adsorption of a pollutant in zeolites.
- A machine learning regression model was fit to the adsorption database.
- The machine-learned model was used with a genetic algorithm to design the optimal zeolite sorbent for boron adsorption for an individual impoundment site.
- The methods developed by NETL can be applied to many applications in materials design.

RESEARCH PRIORITY



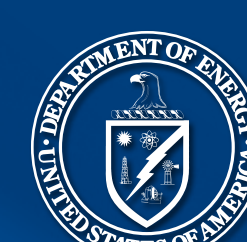
CARBON CAPTURE

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