Characterization of Zeolites for their use in Energy.

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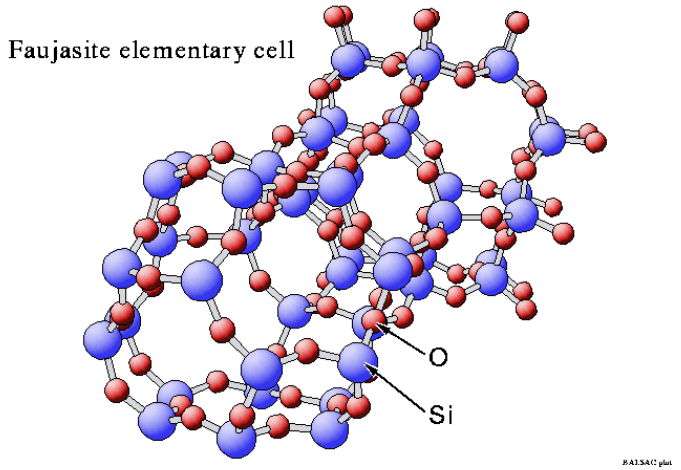
- Zeolites are large alumino-silicate molecules widely used as catalysts in petrolium industry for cracking crude oil and for refining. Its solar heat preserving qualities are also exploited. Other applications are related to its porous nature and are being used in detergent industries and green house gas pollution reduction.

- The catalytic properties of zeolites are the function of its porous cavities and the form of cations which are substituted in those cavities. For this reason it is important to characterize these zeolites and find the location of cations present at different sites and also to find any structural changes due to the cation replacement.

- In this study we replaced sodium cations with copper cations in synthetic Faujasite, zeolite X, and treated the sample at different temperatures that migrated those cations to sodalite cages and hexagonal prisms. We used the technique of XAS to find the location of these cations instead of radioactive Szilard-Chalmers effect, and compared the results with the equivalent radiation technique.



Quantitative Analysis and Distribution of Cations in Zeolite-X Using XAS, S. Khalid, to be published in Material Research Society Proceedings (2010)