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**Biography:** Prof. Nita Sahai has been at the University of Akron since August 2011. Prior to this, she was a full Professor in the Department of Geoscience, University of Wisconsin-Madison for 11 years. She earned her Ph.D. at Johns Hopkins University, Baltimore.

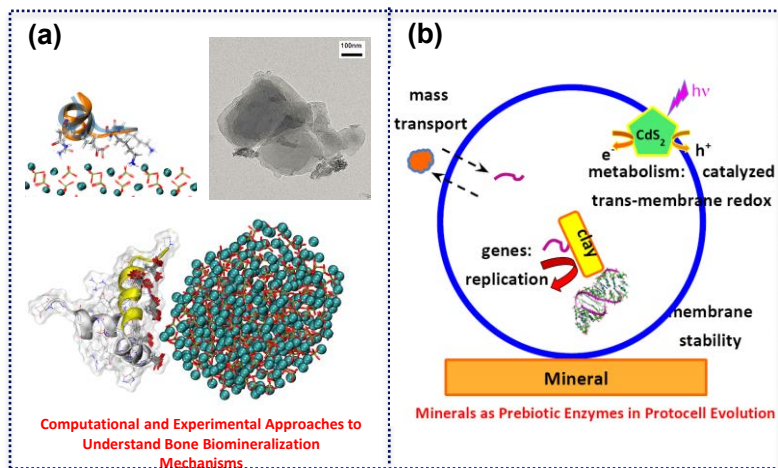
**Awards/Accomplishments:** Prof. Sahai is the Ohio Research Scholar in Biomaterials at the University of Akron. She is a Fellow of the Mineralogical Society of America and was the Distinguished Lecturer of that society in 2013-2014. Prof. Sahai has received the NSF Post-Doctoral Fellowship, the NSF CAREER award, and Romnes Faculty Fellowship from University of Wisconsin-Madison. She has been interviewed on National Public Radio's program "To the Best of Our Knowledge"; presented her work on Public Broadcasting Service's Cleveland channel WVIZ, and on Hungarian National Television News; and her research was reported on in the most widely circulated newspaper in Hungary.

Prof. Sahai has edited *Medical Mineralogy and Geochemistry* of the *Reviews in Mineralogy and Geochemistry Series* and a thematic issue of *Elements* magazine on the same topic. She is an Associate Editor of *Geochimica et Cosmochimica Acta*, the flagship geochemistry journal. Her research has been funded continuously for over 20 years by the NSF, NASA, ACS-PRF, and, recently, by the Simons Foundation, NY.

### Research Interests:

Physical-chemical aspects of cellular and biomolecular interactions at mineral surfaces in processes relevant to (a) bone biomineralization and (b) pre-biotic, non-enzymatic polymerization of RNA and peptides in the origins and early evolution of life.

**Application Focus:** design of improved orthopedic biomaterials for stem cell applications, drug delivery for treating bone-related diseases; non-enzymatic polymerization of biocompatible, bioinspired polymers



### Recent Publications (Student/Post-Doc Names Underlined):

1. Xu Z., Yang Y., Zhao W., Wang Z., Landis W. J., Cui Q. and Sahai N. (2015) Molecular mechanisms for intrafibrillar collagen mineralization in skeletal tissues. *Biomaterials* **39**, 59-66
2. Xu Z., Yang Y., Cui Q. and Sahai N. (2014) Small biomolecule-mediated hydroxyapatite growth: free energy calculations benchmarked to density functional theory. *J. Comput. Chem.* **35**, 70-81.
3. Zhao W., Xu Z., Yang Y. and Sahai N. (2014) Surface energetics of the hydroxyapatite-water interface: a molecular dynamics study. *Langmuir* **30**, 13283-13292.
4. Yang Y., Xu Z., Cui Q. and Sahai N. (2014) Molecular simulation of biomineral nucleation and crystal growth: Modern computational challenges and approaches. *INVITED, Biomaterialization Sourcebook: Characterization of Biominerals and Biomimetic Materials*, Chapter 17, Eds. E. DiMasi and L. Gower, CRC Press, Boca Raton, FL.
5. Kaddour H. and Sahai N. (2014) Nonenzymatic polymerization of RNA: advances and challenges. *INVITED*, special issue of *Life* **4**, 598-620.
6. Greiner E., Kumar K., Sumit M., Giuffre A., Zhao W., Pedersen J. and Sahai N. (2014) Adsorption of L-glutamate and L-aspartate from solution to  $\gamma-Al_2O_3$ . *Geochim. Cosmochim. Acta* **133**, 142-155.
7. Chapron Y., Charlet L. and Sahai N. (2014) Fate of pathological prion (PrP<sup>Sc</sup> 92-138) in soil and water: prion-clay nanoparticle molecular dynamics. *J. Biomol. Struct. Dynam.* **32**, 1802-1816.
8. Cleaves H. J. III, Scott A. M., Hil, F. C., Leszczynsky J., Sahai N. and Hazen R. (2012) Mineral-organic interfacial processes: potential roles in the origin of life. *INVITED* special issue of *Chem. Soc. Rev.* **41**, 5365-5568.