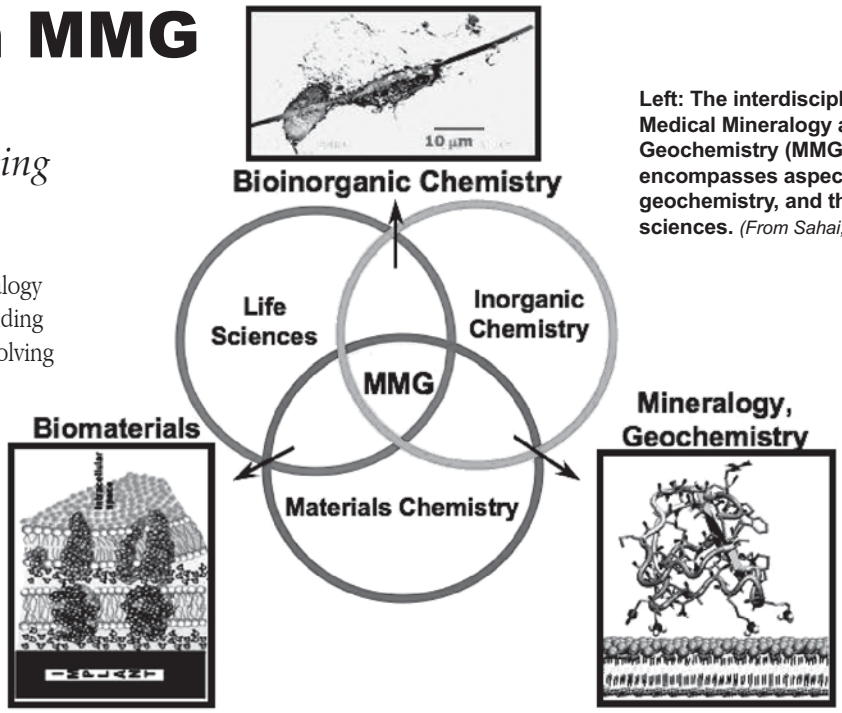
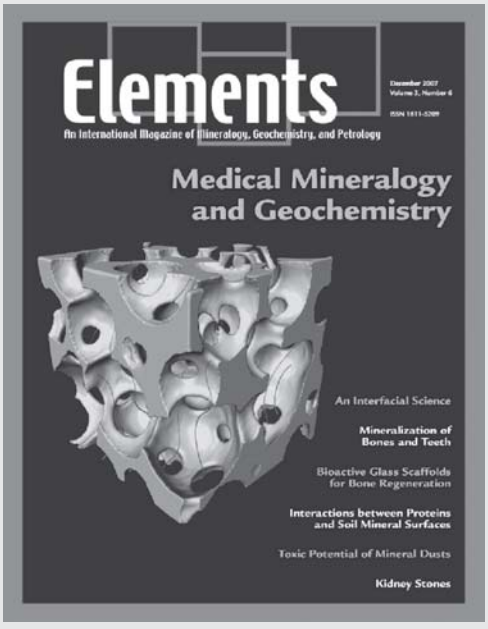
Pioneers in MMG

Medical Mineralogy and Geochemistry is an emerging interdisciplinary field



Left: The interdisciplinary nature of Medical Mineralogy and Geochemistry (MMG)—The field encompasses aspects of mineralogy, geochemistry, and the biomedical sciences. *(From Sahai, 2007)*

The exciting new field of Medical Mineralogy and Geochemistry focuses on understanding the equilibria and reaction pathways involving normal and pathological interactions of inorganic and organic chemical species in gas or aqueous phases with naturally occurring, inorganic solid phases within the human body. As broadly described here, MMG overlaps considerably with bioinorganic chemistry and related areas, but while many of these other areas focus on the organic and biological aspects of human health, MMG focuses on the rich complexity of reactions involving inorganic solid phases. Examples of MMG research (and the UW group-members involved) in **Professor Nita Sahai's** group include bone and teeth mineralization (**Donald Mkhonto**), the role of prion adsorption to clays in chronic wasting disease in deer, sheep scrapie, mad cow disease, and human Cruetzfeld-Jacob disease (Nita Sahai with collaborators at University of Grenoble, France), the interaction of cell membranes with oxide and silicate bioceramic implants (**Tim Oleson, Mark Stevens, Jie Xu**), and the relationship between silicate mineral structure and the ability to direct stem cell differentiation into ostoeblasts (bone-forming cells) at the surface of silicate bioceramic implants (**Nianli Zhang**). The December 2007 issue of the magazine ***Elements*** and ***Reviews in Mineralogy and Geochemistry Series Vol. 64*** on MMG provide, respectively, a broad overview for a general scientific audience and for the specialist. ●



Recent Publications

Professor Nita Sahai and her research group are conducting pioneering studies in Medical Mineralogy and Geochemistry. Nita has recently edited two volumes and written several papers that establish the foundations and place UW-Madison at the forefront of this important new research field.