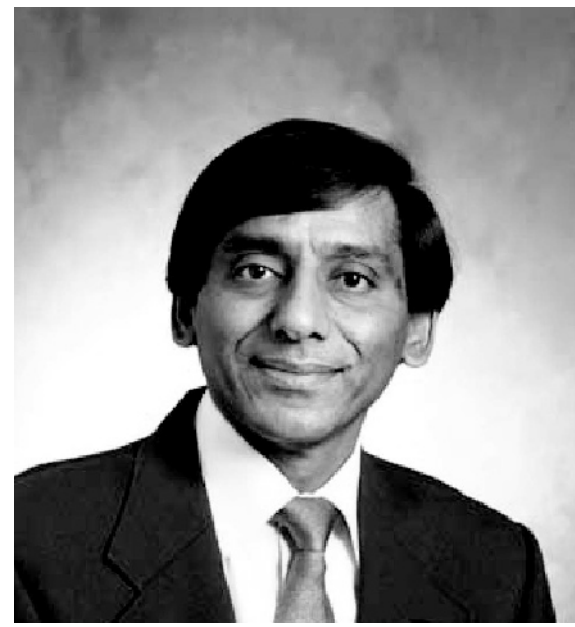
Clays and Clay Minerals, Vol. 60, No. 3, 338–339, 2012.

SRIDHAR KOMARNENI

2011 RECIPIENT OF THE MARILYN AND STURGES W. BAILEY DISTINGUISHED MEMBER AWARD

PRAKASH B. MALLA

It is my sincere pleasure and honor to introduce Professor Sridhar Komarneni as the recipient of the 2011 Marilyn and Sturges W. Bailey Distinguished Member Award of The Clay Minerals Society. This is the highest honor bestowed by the Society and is awarded solely for scientific eminence in clay mineralogy (in its broadest sense) as evidenced by the publication of outstanding original scientific research and by the impact of this research on the clay sciences.



Dr. Komarneni is currently a Distinguished Professor of Clay Mineralogy in the Materials Research Institute as well as the Department of Crop and Soil Sciences and an Adjunct Professor of Civil and Environmental Engineering at Pennsylvania State University. Dr. Komarneni received his B.S. degree from the Andhra Pradesh Agricultural University, India, with the highest rank, followed by an M.S. degree in Soil Chemistry from the Indian Institute of Agricultural Research in New Delhi. After completion of his M.S. degree, Dr. Komarneni joined none other than M.L. Jackson at the University of Wisconsin for his Ph.D. I recall reading an interview with Dr. Jackson in which he mentioned Dr. Komarneni as his smartest Ph.D. student ever. He also had an association with Dr. S.W. Bailey as a student: in two graduate-level X-ray Crystallography classes and when Dr. Bailey served as a co-advisee for his dissertation. Dr. Komarneni continued working with Dr. Jackson for two years after the completion of his Ph.D. and then moved to Pennsylvania State University to work with Dr. G.W. Brindley and then with Dr. Rustom Roy at the Materials Research Laboratory. In essence, Dr. Komarneni has worked with several of the great minds in clay mineralogy. He moved to the rank of Associate Professor in 1984 and was promoted to full professor in 1987.

Dr. Komarneni's seminal scholarly contributions span several research areas. First, he has made fundamental contributions to the field of clay mineralogy where he has investigated the atomic architecture and nanostructure of clay minerals using a variety of techniques, including solid-state nuclear magnetic resonance spectroscopy and transmission electron microscopy. He has shown creative excellence in the design and synthesis of novel clays, which are expected to have a tremendous impact in the provision of clean drinking water worldwide through filtration as well as soil remediation. He has developed several novel synthetic clays and characterized the kinetics and equilibrium thermodynamics of their ion-exchange behavior. These novel clays are useful in drinking-water filters for elimination of toxic metals, as well as in the separation of radioactive ^{226}Ra, ^{90}Sr, and ^{137}Cs from contaminated sites and waste waters. His publications in Science and Nature in this area have received world-wide publicity in news media such as *The New York Times*, *The Wall Street Journal*, and the London *Financial Times*. This research was referred to as "Mighty Mica" in the publication: *Innovations by Environmental Health Perspectives, Journal of the National Institute of Environmental Health Sciences*.

Second, he has made original contributions in the field of solidification of nuclear and other hazardous waste. Dr. Komarneni's research on nuclear-waste disposal spans the entire field, *i.e.* from the design and synthesis of new clays for ion separations, to ceramic waste forms, to backfills, and to studies of glass/ceramic waste-rock interactions.

https://doi.org/10.1007/BF03406043 Published online by Cambridge University Press

Third, he has made seminal contributions in the materials field by designing and synthesizing a series of new materials, including various nanocomposites. He pioneered 'nanocomposite sol-gel processing' to achieve crystallization and densification in various materials at lower temperatures. Rapid growth has occurred in the field of nanotechnology in recent years, but Professor Komarneni was one of the original innovators who helped to create this field over three decades ago. He has also designed and synthesized new nanocomposites of clays with oxides and metals which are useful as desiccants and catalysts, respectively. The optimized nanocomposite desiccants he developed for use in gas-fired cooling and dehumidification equipment use no environmentally threatening refrigerants.

Fourth, Dr. Komarneni has also made significant original contributions to the field of hydrothermal processing, including the processing of nanophase oxide materials and metal powders. In 1991, he invented the use of a microwave-hydrothermal method as a new process, for faster, greener, and cheaper synthesis of oxide and metal powders of various unary, binary, and ternary compositions. Based on the results of his papers on microwave hydrothermally synthesized hematite, Yuten Kama Co. Ltd., Japan, commercialized this nano-hematite to exert delicate control over the red color in their Arita Porcelains.

Fifth, Komarmeni also designed and synthesized slow-release fertilizers based on zeolite minerals through a novel occlusion of ammonium or potassium nitrate salts in the 3-D structures. He also developed slow-release nitrate fertilizers based on bi-dimensional anionic clays.

Professor Komarneni is an outstanding researcher with >500 refereed papers, including 184 refereed articles on clays and related minerals, 10 patents, and 11 books either edited or written. The quality of these publications has been affirmed by his recognition as a 'Highly Cited Researcher' by the Institute for Scientific Information (ISI) in 2002. As of July 6, 2012, his publications have received a total of 9,331 citations and his h-index is 51, according to the ISI. He has received funding of >$18 million for his research. He served as the founding Editor-in-Chief of the *Journal of Porous Materials* and joint Editor-in-Chief of *Materials Research Innovations*. Dr. Komarneni has been awarded fellowship by five different professional societies: the American Association for the Advancement of Science, the American Ceramics Society, the Soil Science Society of America, the American Society of Agronomy, and the Royal Society of Chemistry. He has been elected to the European Academy of Sciences and World Academy of Ceramics and was awarded the Marion L. and Chrystie M. Jackson Mid-Career Clay Scientist Award by The Clay Minerals Society in 2002. Dr. Komarneni has trained more than 30 students and at least 60 visiting students, scientists, professors, and research associates from all over the world.

Dr. Komarneni is not only an outstanding example of clay research, he is also an excellent example of multidisciplinary research and has contributed greatly in materials science and ceramics. His contributions and accomplishments should be a great source of inspiration for up and coming clay scientists. Dr. Komarneni has demonstrated that, because they are clay mineralogists, they do not have to limit their research to traditional clay mineralogy only and have great potential to be successful in other, related fields of research.

On a personal note, I echo what the CMS President, Dr. Paul Schroeder, said about ''taking risks.'' Dr. Schroeder mentioned that several people took risks on him when he was a young researcher and their faith was repaid. Likewise, back in 1987, when I had just completed my Ph.D. at Rutgers University, Dr. Komarneni took a chance by accepting me as a post-doctoral research associate. At that time, I had little knowledge of anything, but had a great deal of enthusiasm and motivation to make a difference in the world. While I had other choices, I elected to go to Penn State. I benefited greatly from my association with Dr. Komarneni and others at the Materials Research Laboratory at Penn State and that really helped to define who I am today, both professionally and personally.

I congratulate Dr. Sridhar Komarneni on his award of the Marilyn and Sturges W. Bailey Distinguished Member Award.

https://doi.org/10.1007/BF03406043 Published online by Cambridge University Press