



**Amit  
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**“Hard Materials and  
Manufacturing  
Processes Towards  
Repair and  
Reconstruction of  
Bone Disorders”**

**Wednesday, March 26**  
320 Shillman Hall  
11:45 a.m. – 1:00 p.m.

*Refreshments will be  
served*

**ABSTRACT** Musculoskeletal disorders, bone deficiencies or osteoporosis are among the most important human health conditions that exist today. Currently, repairing such bone defects involves surgical techniques, including the use of autogenous grafts, allogeneous grafts, internal and external fixation devices, electrical stimulation, and replacement implants. Although effective in many cases, these existing technologies still need improvement to overcome many difficulties. Our research is focused on hard biomaterials such as metals, ceramics and composites as well as their manufacturing at different length-scales towards repair and reconstruction of bone disorders. The presentation will focus on our recent work on load-bearing implants such as hip and knee joints to reduce stress shielding and minimize wear induced osteolysis and to enhance bone-tissue engineering via surface modification such as electrical polarization. Application of 3D printing towards novel implants designs will also be discussed.

**BIOGRAPHY** Amit Bandyopadhyay received his Ph.D. in Materials Science and Engineering from the University of Texas at Arlington in 1995. He joined the Center for Ceramics Research at Rutgers University for his post-doctoral training in 1995. In

1997, he joined the School of Mechanical and Materials Engineering (MME) at WSU as an Assistant Professor and promoted to an Associate level in 2001 and to the full professor level in 2006. Prof. Bandyopadhyay supervised/supervising 12 Ph.D. and 22 MS graduate students. He has published over 240 technical papers including over 165 journal papers, and edited 5 books. He is the inventor of 9 issued US patents. His research papers have been cited over 4800 times by various research groups (“h” index 39). Prof. Bandyopadhyay is a Fellow of the American Ceramic Society (ACerS), American Society for Materials (ASM International), American Institute for Medical and Biological Engineering (AIMBE) and American Association for the Advancement of Science (AAAS). He is also a member of the editorial board for over 10 print and online journals. Currently, he is a visiting faculty at the School of Engineering and Applied Sciences at Harvard University.

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