

Sarit B. Bhaduri

Professor

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A. Education

Ph.D., Materials Science & Eng., State University of New York, Stony Brook (S.U.N.Y.), 1981.

M.S., Physics, Indian Institute of Technology, Kharagpur 1976.

B.S., Physics (Honors), Indian Institute of Technology, Kharagpur 1974.

B. Appointments

2007-present Professor & Director, MFML, Dept of MIME/Surgery University of Toledo, OH

2002-07 George Bishop III Endowed Chair and Professor, SMSE Clemson University, SC

1990-02 Professor ('98) University of Idaho, ID

Tenured Associate Professor ('94)

Assistant Professor ('90)

1989-90 Visiting Faculty University of Cincinnati, OH

1983-1989 Sr. Scientific Officer and DMRL, India

Principal Scientific Officer

C. Honors & Awards

- Fellow, Am Ceram. Soc., 2001,
- Editorial Board, Journal of biomedical Materials Research;
- Panelist and Reviewer for NSF, 1992-present
- Study section member, NIH; Reviewer for many journals

D. Patents:

1. Bone cement composition useful for treating a targeted anatomical location, comprises a powder comprising a basic source of calcium, magnesium or strontium, a setting solution and a biocompatible polymer Patent Number: WO2013116457-A1; AU2013215158-A1; CA2863381-A1; KR2014129058-A; EP2809364-A1; US2015005392-A1; JP2015505511-W; CN104837512-A Patent Assignee: UNIV TOLEDO; BHADURI S B; ZHOU H; AGARWAL A K; GOEL V K Inventor(s): **BHADURI S B**; ZHOU H; AGARWAL A K; GOEL V K.
2. Calcium phosphate nanowhisker particles, method of making and using the same Patent Number: US 8906415 Patent Assignee: UNIV TOLEDO Inventor(s): **BHADURI S B**; WAGNER D E.
3. Bone filler composition used in treating osteoporosis, multiple myeloma and cancer-induced bone defect, comprises of an alkaline earth-phosphate cement, nanotubular structures, and therapeutic agent or cells Patent Number: WO2014160232-A2; WO2014160232-A3 Patent Assignee: UNIV TOLEDO Inventor(s): AGARWAL A K; GOEL V K; KIM D; **BHADURI S B**; LIN B.
4. Macroporous cement composition for bone implant comprises pores made from hydrogen evolving process and having size within a given range in micrometer to millimeter unit Patent Number: WO2015077531-A2 Patent Assignee: UNIV TOLEDO Inventor(s): **BHADURI S B**; ZHOU H; AGARWAL A K; GOEL V K.

- Rare-Earth Containing Biodegradable Nanocrystalline Magnesium Alloys for Implant Applications
Patent Number: Applied for Patent Assignee: UNIV TOLEDO Inventor(s): **BHADURI S B**; ZHOU H (2014).

E. Project Support:

- NSF A Microwave Assisted Biomimetic Coating Technology for Polymer Implants (Bhaduri P.I.)

\$168,000	2013-15
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- ODOD, Third Frontier/Ohio Injectable Bone Cement (Bhaduri P.I.)

\$100,000	2012-15
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- Glass Industry Flash Strengthening of Glass (Bhaduri P.I.) **\$252,000** **2012-15**
- ODOD, Third Frontier/Ohio Development of Spinal Devices of the Future. (Bhaduri Co-P.I.)

\$2,499,676	2013-16
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F. Publications:

- Preparation of calcium phosphates with negative zeta potential using sodium calcium polyphosphate as a precursor. H Zhou, S Kong, SB Bhaduri, L Deng, Materials Letters 156, 79-81(2015).
- Microwave-assisted rapid preparation of Ca₁₀Na(PO₄)₇ using sodium triphosphate as a phosphorus source. H Zhou, M Zhang, H Chai, S Hou, M Tan, L Wang, SB Bhaduri, L Deng, Ceramics International (2015) (on the web: <http://dx.doi.org/10.1016/j.ceramint.2015.08.082>).
- Silicon (Si) containing bone cements: a review. H Zhou, TJF Luchini, SB Bhaduri, L Deng, Materials Technology: Advanced Biomaterials (2015), (on the web: <http://dx.doi.org/10.1179/17535557B15Y.000000005>).
- In situ measurement of shrinkage and temperature profile in microwave- and conventionally-sintered hydroxyapatite bioceramic. MG Kuttly, SB Bhaduri, H Zhou, A Yaghoubi, Materials Letters (2015), <http://dx.doi.org/10.1016/j.matlet.2015.08.136>.
- Influence of ethanol content in the precipitation medium on the composition, structure and reactivity of magnesium–calcium phosphate. E Babaie, H Zhou, B Lin, SB Bhaduri, Materials Science and Engineering: C 53, 204-211 (2015).
- Magnesium substitution in the structure of orthopedic nanoparticles: A comparison between amorphous magnesium phosphates, calcium magnesium phosphates, and hydroxyapatites. M Nabiyouni, Y Ren, SB Bhaduri, Materials Science and Engineering: C 52, 11-17 (2015).
- Development of nanosilica bonded monetite cement from egg shells. H Zhou, TJF Luchini, NM Boroujeni, AK Agarwal, VK Goel, SB Bhaduri, Materials Science and Engineering: C 50, 45-51 (2015).
- Rapid coating of AZ31 magnesium alloy with calcium deficient hydroxyapatite using microwave energy. Y Ren, H Zhou, M Nabiyouni, SB Bhaduri, Materials Science and Engineering: C 50, 45-51 (2015).
- Masking the bitter taste of injectable Lidocaine HCl formulation for dental procedures Y Wei, MP Nedley, SB Bhaduri, X Bredzinski, SHS Boddu, AAPS Pharm Sci Tech 16 (2), 455-465 (2014).
- Book Chapter by NE Prasad and SB Bhaduri “Monolithic Ceramics for Aerospace Applications’ in AEROSPACE MATERIALS AND TECHNOLOGIES, (To be published by Elsevier), edited by RJH Wanhill and NE Prasad (Accepted, to come out in print in 2015).

G. Papers Presented at Professional Meetings

- N Rostami, H Zhou, and **SB Bhaduri**. Development of Novel Magnesium Phosphate Cements for Orthopedic Applications, MST '14, Pittsburgh, PA.
- Y Ren, H Zhou, and **SB Bhaduri**. Synthesis of Nanocrystalline Mg-Y Alloys by Mechanical Alloying and Spark Plasma Sintering, MST '14, Pittsburgh, PA.

3. M Nabiyouni and **SB Bhaduri**. DNA Delivery Applications of Magnesium Phosphate Nanoparticles MST '14, Pittsburgh, PA.
4. M Nabiyouni and **SB Bhaduri**. Amorphous Magnesium Phosphate Nanoparticles as Non-viral DNA carriers, SfB Annual meeting '15 Charlotte, NC.
5. E Babaie, Y Ren , **SB Bhaduri**. Microwave Processing of Amorphous Magnesium-Calcium Phosphate, SfB Annual meeting '15 Charlotte, NC. Y Ren and **SB Bhaduri**, xxx, SfB Annual meeting '15 Charlotte, NC.