**Gladius Lewis-Brief CV**

Professor

Department of Mechanical Engineering

Room 316 Engineering Science Building

The University of Memphis

Memphis, TN 38152

Phone: (901) 678-3266

e-mail: [glewis@memphis.edu](mailto:glewis@memphis.edu)

**Administrative Contact**:

Patricia Vasser

Phone: (901) 678-2173

e-mail: [pvasser@memphis.edu](mailto:pvasser@memphis.edu)

**Research Expertise**

Engineering Materials, Mechanics of Materials, Biomaterials, Biomechanics

**Professional Preparation**

Ph.D. in Metallurgy and Materials Science, University of Nottingham, England, 1976

M. S. in Corrosion Science and Engineering, Sir John Cass College, London, England, 1974

B. S. in Mechanical Engineering, University of London, 1972

**Other Appointments**

Adjunct Clinical Assistant Professor of Orthodontics, Dunn College of Dentistry, University of Tennessee, Memphis, 1996-1998

Adjunct Professor of Orthopaedic Surgery, The University of Tennessee, Memphis, 2000

Visiting Professor, Department of Engineering Science and Mechanics, Pennsylvania State University, University Park, PA; Summer 1993, Summer 1995, Summer 1998, Summer 2000, Summer 2002

Faculty Research Participant, Ceramics Department, Materials and Component Technology Division, Argonne National Laboratory; Summer1990

**Selected Publications** *(from about 200 journal articles and about 50 presentations at technical meetings)*

1. G. Lewis, “Viscoelastic properties of injectable bone cements for orthopaedic applications: state-of-the art review,” *Journal of Biomedical Materials Research Part B: Applied Biomaterials, V*olume 98B, pp. 171-191 (2011).

2. **G. Lewis** and K. M. Shaw, “Creep constitutive model and component lifetime estimation: the case of columbium-modified 9Cr-1Mo steel weldments,” *Journal of Materials Engineering and Performance*, Volume 20, pp. 1310-1314 (2011).

3. Y. Li and **G. Lewis**, “Conventional versus minimally-invasive cervical discectomy for treatment of severe degenerative disease at C5-C6: a biomechanical comparison using a model of the full cervical spine and finite element analysis,” *Journal of Biomedical Science and Engineering,* Volume 4, pp. 599-608 (2011).

4. G. Qi, M. Fan, **G. Lewis**, and S. F. Wayne, “An innovative multi-component variable that reveals hierarchy and evolution of structural damage in a solid: application to acrylic bone cement,” *Journal of Materials Science: Materials in Medicine,* Volume 23, pp. 217-228 (2012).

5. G. Lewis, “Nucleus pulposus replacement and regeneration/repair technologies; present status and future prospects,” *Journal of Biomedical Materials Research Part B: Applied Biomaterials,* Volume 100B, pp. 1702-1720 (2012).

6. A. Salehi, A. Cox Parker, **G. Lewis**, H. S. Courtney, and Warren O. Haggard, “A daptomycin-xylitol-loaded polymethylmethacrylate bone cement: how much xylitol should be used?” *Clinical Orthopaedics and Related Research*, Volume 471, pp. 3149-3157 (2013).

7. **G. Lewis**, “Properties of open-cell porous metals and alloys for orthopaedic applications,” *Journal of Materials Science: Materials in Medicine,* Volume 24, pp. 2293-2325 (2013).

8. K. Schlachter and **G. Lewis**, “Design of a first metatarsophalangeal joint simulator,” *Journal of the American Podiatric Medical Association,* Volume103,

pp. 411-417 (2013).

9. D. M. Werdofa and G. Lewis, "Direct and interactive influence of explanatory variables on properties of a calcium phosphate cement for vertebral body augmentation," *Journal of Materials Science: Materials in Medicine,* Volume 25, pp. 55-66 (2014).

10. A. Salehi, G. Lewis, A. Cox Parker, and W. O. Haggard, "Modeling of daptomycin release from medium-dose daptomycin-xylitol-loaded PMMA bone cements," *Journal of Biomedical Science and Engineering,* Volume 7, pp. 351-360 (2014).

11. **G. Lewis**, “Improved acrylic bone cements for orthopaedic and spinal applications,” Keynote Address, *ATA 2nd Global Biomedical Materials Congress*, Shanghai, China, February 20-21, 2014.

12. **G. Lewis,** “Not all approved antibiotic-loaded PMMA bone cement brands are the same: ranking using the utility materials selection concept,” *Journal of Materials Science: Materials in Medicine*(in press, 2014).

**Current Research**

Analyses of Experimental Datasets for Properties of Poly (Methyl Methacrylate) Bone Cement

Selection Methodology for Antibiotic-Loaded Poly (Methyl Methacrylate) Bone Cement

**Selected Awards**

Fellow, American Society of Mechanical Engineers; 2008

Willard R. Sparks Eminent Faculty Award, The University of Memphis; 2013