

# University of Washington Department of Bioengineering

## Allan S. Hoffman Lecture

### Nicholas A. Peppas, Sc.D.

Fletcher Stuckey Pratt Chair in Engineering  
Professor of Biomedical Engineering, Chemical Engineering and Pharmacy  
Chairman, Biomedical Engineering Department  
Director of Center on Biomaterials, Drug Delivery, and Bionanotechnology  
University of Texas at Austin



**Nicholas A. Peppas** is the Fletcher S. Pratt Chaired Professor in Chemical, Biomedical Engineering and Pharmacy at the University of Texas at Austin. His work in biomaterials, polymer physics, drug delivery and bionanotechnology follows a multidisciplinary approach by blending modern molecular and cellular biology with engineering principles to design the next-generation of medical systems and devices for patient treatment. Dr. Peppas is a member of the National Academy of Engineering (NAE) (2012 NAE Founders Award), the Institute of Medicine (IOM), the National Academy of France, the Royal Academy of Spain, and the Academy of Texas. He is President of the International Union of Biomaterials Societies and Chair-elect of the Engineering Section of AAAS. Dr. Peppas holds a Dipl. Eng. from the NTU of Athens (1971), a Sc.D. from MIT (1973), and is a proud academic brother of Professor Allan S. Hoffman.

### “HYDROGELS, INTELLIGENCE AND THERAPEUTIC SYSTEMS: IS THERE A FUTURE?”

**Time:** 3:30 pm

**Date:** Monday, Oct. 14, 2013

**Place:** Genome Sciences Auditorium, S060 Foege South

**Reception following lecture**

**Place:** To be announced at lecture

**Abstract:** Almost sixty years ago, Allan Hoffman taught us how to use irradiation to prepare polymers and hydrogels with superior properties. Since then, his leadership has been followed by many researchers. Intelligent hydrogels is a field that he pioneered with imagination, careful design and a sense for translational research. These days, engineering the molecular design of intelligent biomaterials by controlling recognition and specificity is the first step in coordinating and duplicating complex biological and physiological processes. Recent developments in protein delivery have been directed towards the preparation of targeted formulations for protein delivery to specific sites, use of environmentally-responsive polymers to achieve pH- or temperature-triggered delivery, usually in modulated mode, and improvement of the behavior of their mucoadhesive behavior and cell recognition. We address design and synthesis characteristics of novel intelligent and cognitive networks capable of protein release as well as artificial molecular structures capable of specific molecular recognition of biological molecules.

*The Hoffman Lecture honors UW Bioengineering's Dr. Allan Hoffman, now in his 55th year of active research. Dr. Hoffman joined the UW faculty in 1970, when he began to synthesize polymers and hydrogels with special physical and biomedical properties. By combining these special biomaterials with drugs, enzymes and antibodies, he pioneered the applications of temperature and pH-responsive intelligent polymers and hydrogels in the fields of drug delivery, diagnostic assays, and biologically-active and non-fouling polymer surfaces. Much of this research has been carried out in collaboration with Buddy Ratner, Tom Horbett and Patrick Stayton in our Bioengineering Department. With Dr. Buddy Ratner, Dr. Hoffman is a co-editor of the "Textbook of Biomaterials Science," now in its second edition.*

*A few of Dr. Hoffman's awards and recognitions include election as President of the Society for Biomaterials in 1983; receipt of the Founders' Awards from the Society for Biomaterials in 2000 and from the Controlled Release Society in 2007; election to the National Academy of Engineering in 2005--he is one of five members of our department who have been elected to the NAE. Dr. Hoffman takes great pride in being an international "ambassador for biomaterials" as he continues very actively to lecture and teach short courses at UW and around the world.*

For more information contact Ms. Shirley Nollette (206) 685-2002 or [nolletts@uw.edu](mailto:nolletts@uw.edu).