

## **“Measurement of the Protective Macular Carotenoids in the Human Retina”**

**Dr. Richard Bone  
Department of Physics  
Florida International University**

**Friday, February 14th, 2014  
LECTURE: 9:00 AM - 10:00 AM**

**ENGINEERING CENTER  
ROOM EC 1112  
10555 WEST FLAGLER STREET  
MIAMI, FL 33174**



### **Abstract:**

Carotenoids concentrated in the center of the retina (macular pigment) afford protection through their light filtering and antioxidant properties against age-related macular degeneration (AMD). They are of dietary origin and their density in the retina can be increased through appropriate supplementation. Thus it is of interest to be able to screen patients for their level of macular pigment, offer advice on supplement use, and subsequently monitor the uptake of the carotenoids into the retina. In this talk, Dr. Bone will outline different methods that have been developed for measuring macular pigment non-invasively, including a novel instrument that he has designed for this purpose. The instrument (mapcat SF™) simultaneously provides the patient's lens density which, if high, may be an indicator of incipient cataract.

### **Biography**

Dr. Richard Bone is an experimental biophysicist and professor in the Department of Physics at FIU. Highlights from his ~ 40-year research career include the identification of the macular carotenoids and their role in age-related macular degeneration and cataract. Early in his career, he devised a way to measure the carotenoids in the macula of the eye and demonstrated that they could be increased by dietary supplementation. These two related discoveries led to the invention of a novel, non-intrusive device to measure macular pigment density as well as lens density, and an eye-care supplement containing a specific combination of lutein, zeaxanthin and meso-zeaxanthin. He is co-owner of patents for both the device and the supplement formula, which he shares with fellow researcher Dr. John T. Landrum. He has published more than 50 scholarly articles in leading journals as well as a number of contributed chapters in books devoted to carotenoids and the health of the eye. He has been the recipient of numerous research grants including continuous funding by the National Institutes of Health since 1984. In 2010, he was elected Fellow of the Association for Research in Vision and Ophthalmology.

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