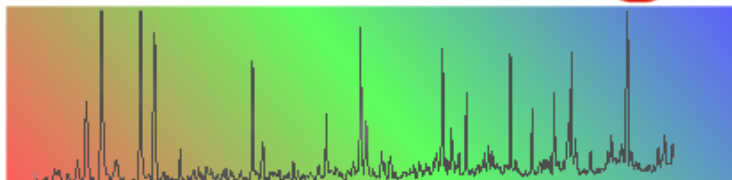




# SAS-Chicago



Please visit our linked business cards on the [last page](#) of this flyer.

## April Meeting Tuesday, April 11, 2006

The April 2006 meeting will be held at the Steven's Steakhouse Restaurant, located at 476 N. York Road, Elmhurst, IL 60126-2002, 630-834-6611. *See the map on the following page.*

**Social Hour: 5:30 - 6:30 PM**

**Dinner: 6:30 PM**

**Speaker: 7:30 – 9:00 PM**

### Optical detection of Carotenoid Antioxidants in Human Tissue

*Presentation by*  
**Werner Gellermann, Ph. D.**  
(Department of Physics, University of Utah)

Carotenoid compounds are important ingredients for the anti-oxidant defense system of the human body. These lipophilic molecules are potent free radical quenchers accumulated in the body tissues through fruit and vegetable consumption. Numerous epidemiological and experimental studies have shown that a higher dietary intake of carotenoids may protect against cancer, age-related macular degeneration, premature skin aging and other pathologies associated with oxidative cell damage. The rapid and non-invasive measurement of carotenoid concentrations in human tissue therefore may be of diagnostic help.

We have used noninvasive optical techniques, based on resonance Raman and fluorescence spectroscopy, to rapidly screen carotenoid levels in human skin and in the retina and in this way to assess antioxidant status in large populations. Data obtained for a population of 1,375 subjects with a portable skin Raman scanner revealed that carotenoids are a good indicator of antioxidant status or oxidative stress. The study showed that people with high oxidative stress (for example smokers and people with high sunlight exposure) generally have low skin carotenoid levels, independent of their dietary carotenoid consumption.

Using ocular Raman and fluorescence instruments suitable for clinical studies we measured lutein and zeaxanthin concentrations in the living human retina of healthy and macular degeneration subjects. We find the optical techniques to be precise, specific, sensitive, and well suitable for clinical as well as field studies. They hold promise as useful methods to study the correlation between tissue carotenoid levels and risk for malignancies or other degenerative diseases associated with oxidative stress.

Please make your dinner reservations for the upcoming meeting by email at [sas.chicago@bigfoot.com](mailto:sas.chicago@bigfoot.com), by using the form on our web page < <http://www.sas-chicago.org/Online%20Registration%20at%20Steven's%20Steak%20House.htm> >, or by calling Mary Kaplar at 708-449-5767. Leave **your name, company affiliation, a telephone number, the number of reservations and your choice of entree**. Please call by **noon April 7th**, so that proper arrangements can be made with the restaurant. If you can't attend, cancel by Mon. noon: SAS is charged for no-shows.

**Entree choices: London broil Steak, Chicken with Lemon Caper Sauce, or Vegetarian Fettuccini.**

**Dinner Cost Members: \$25**

**Students and Unemployed Members: \$10**  
**(No Shows may be Billed)**

**Non-members: \$30**

## Biography of Werner Gellermann

Werner received an undergraduate diploma in Physics from the Universität Hannover, Federal Republic of Germany. He later attended the University of Utah in Salt Lake City where he graduated with a Ph.D. related to solid state physics. From 1983-1985 he was an Assistant Professor at the Institute for Quantum Optics at the University of Hannover in Germany. From 1985 to the present he has been a physics professor at the University of Utah in Salt Lake City, and from 1999 a director at the Center for Biomedical Optics.

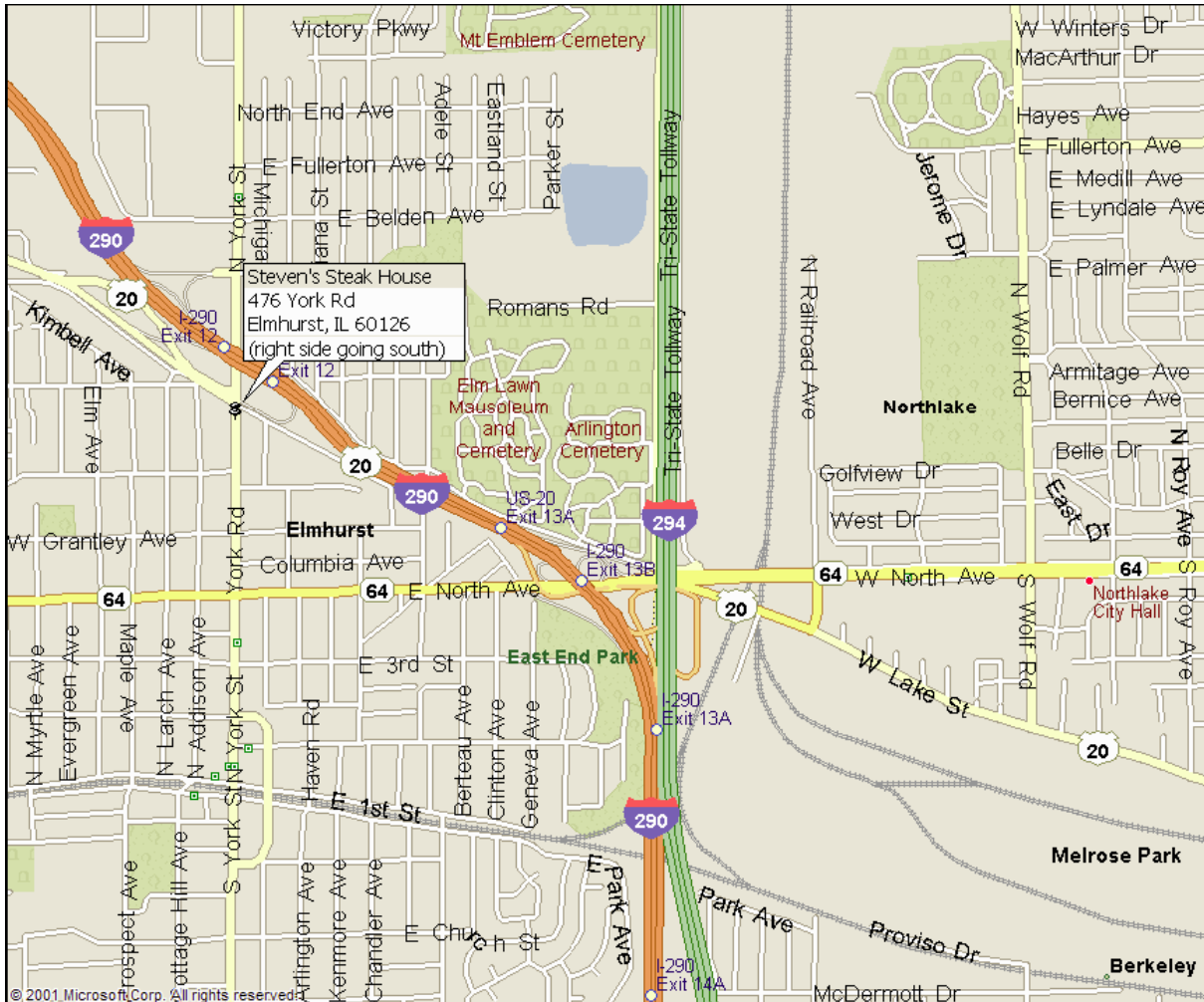
Seven patents and ten research awards have been granted to him. He has 57 publications.

Interests are biomedical laser applications, optical properties of solid state materials, solid state spectroscopy of electronic and vibrational transitions of defects in insulating crystals, quantum optics, ultrafast optical phenomena in solid state materials, broadly tunable continuous-wave and ultrafast solid state lasers.

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