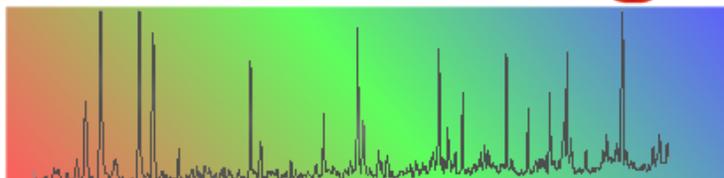




SAS-Chicago



September Meeting

Tuesday, September 24, 2019

The September meeting will be held at the Holiday Inn, located at 1000 Busse Road, Elk Grove Village, IL 60007. See the map on the last page.

Social Hour: 6:00 PM

Dinner: 6:30 PM

Speaker: 7:30 PM

Laser Ablation: Interest, Passion, Career, Company

Richard E. Russo, Ph.D.

Lawrence Berkeley National Laboratory, Berkeley, CA, USA

Applied Spectra, Inc, Fremont, CA USA

How can someone be so enamored by light to occupy 40 years' time; not a question but a fact. As an undergraduate student, I was introduced to a laser (Interest). Learning about lasers in graduate school was exciting (pun) but Lawrence Berkeley was the ultimate – use lasers to explode surfaces. Now how to get funding to pursue this Passion? The DOE (Department of Energy) was gracious in providing 30+ years (Career) of funding for the science and application of laser ablation - for direct solid sample analysis of waste-site and nonproliferation samples. Laser ablation sampling eliminates the need for chemical digestion, as well as numerous other attributes. Ablated mass is transformed into a luminous plasma that cools and condenses to a fine aerosol. The aerosol is transported to an ICP-MS (Inductively Coupled Plasma Mass Spectrometry) for sensitive isotopic analysis. Atomic and ionic spectral emissions from the luminous plasma are monitored for elemental analysis (LIBS – Laser Induced Breakdown Spectroscopy). Our new technology LAMIS (Laser Ablation Molecular Isotopic Spectroscopy) measures molecular band emission in the same luminous plasma. Isotopic spectral splitting is enhanced up to several orders of magnitude in molecular emission spectra. Measuring molecular optical emission in atmospheric pressure laser plasmas becomes a unique approach for remote isotope analysis. Combining the capabilities of photon and aerosol measurements gives a technology for measuring all elements and their isotopes on the periodic chart, simultaneously in every laser pulse. Expanding beyond waste-site and non-proliferation samples led to industrial commercial applications and founding a Company. This lecture will highlight my experience with laser ablation over the years from Interest to Passion to Career to Company.

Please make your dinner reservations for the upcoming meeting by email at sas.chicago1@gmail.com, using our online form [<SAS Registration Form>](#) or by calling Slav Stepanovich at 847-421-2056. Leave **your name, company affiliation, a telephone number, the number of reservations and your choice of entree**. Please call by **noon Friday, September 20th**, so that proper arrangements can be made with the restaurant. Credit card payments must be made via PayPal. Use the Donate link on the registration page prior to the meeting. Only payment by cash and check will be accepted at the meeting. Contact us if you can't attend; the SAS is charged for no-shows.

Entree choices: Chicken Parmesan, Cedar Plank Salmon or Pepper Encrusted Ribeye

Dinner Cost - Members: \$30

Students and Unemployed Members: \$10

Non-members: \$30

[Link to pay by Credit Card](#)

Richard E. Russo, Ph.D.

Dr. Rick E. Russo has studied fundamental properties of laser material interactions and related applications for over 25 years. Dr. Russo earned a B.S. degree in Chemistry at the University of Florida (1976), and received his Ph.D. in Chemistry from Indiana University (1981), where he also completed his postdoctoral studies. Since 1982, he has held various positions at the Lawrence Berkeley National Laboratory in Berkeley, California, where he is currently a Senior Scientist. His background includes experience with state-of-the-art lasers, spectroscopic instrumentation, imaging systems, computers, and electronics. His research has included: fundamental studies of laser heating and laser ablation processes; improved chemical analysis using laser ablation inductively coupled plasma mass spectrometry; study and fabrication of high-temperature superconductor (HTSC) thin-films; fiber sensors for monitoring organic and radioactive species in groundwater; Raman, fluorescence, and photothermal spectroscopy of rare-earth and actinide ions; acoustic monitoring with optical fibers (laser ultrasonics, non-destructive evaluation); and the fabrication of porous optical materials (aerogels). He is co-inventor of the ion-assisted pulsed laser deposition (IBAD) and ion-texturing (ITEX) processes, and holds the world record for the highest critical current density (J_c) HTSC film on polycrystalline substrate (1992). He published more than 350 manuscripts in a variety of journals including Spectrochimica Acta B, Journal of Analytical Atomic Spectrometry, Applied Physics Letters, and others. He also has over 30 patents, 9 book chapters, and 400+ presentations to his name. He received R&D 100 Awards in 2006 and 2012, The Lester Strock Award in 2005 and 2013, and the ACS Award in Spectrochemical Analysis in 2016. His technical and scientific expertise is a driving factor in Applied Spectra's emerging role in the LIBS and LA-ICP-MS industry.



Elk Grove Holiday Inn, 1000 Busse Road, Elk Grove Village, IL, Phone 847-437-6010

