Gas chromatography/olfactometry (GC/O) is typically used to identify aroma-active compounds with organoleptic significance from the rest of the volatile compounds. As chromatographic separation proceeds, the effluent from the GC is split into a FID or MS detector and a ‘sniffing port’ where human subjects use their noses to recognize individual aroma and make note of aroma descriptors at respective retention times. The aroma analysis is extremely challenging because the human nose can detect aroma compounds at parts per billion (ppb) or parts per trillion (ppt) level, much lower than the detection limits of most detectors. The advances in analytical instrumentation, particularly in gas chromatography-mass spectrometry (GC-MS) and solventless sample preparation technique such as solid-phase micro-extraction (SPME) and stir bar sorptive extraction (SBSE), allow for rapid extraction and analysis of aroma compounds from food without tedious sample preparation. In addition, 2D GC-MS with “heart-cut” using a “Deans” switch has been very successful for aroma isolation and identification, particularly for the study of active chiral aroma compounds. This presentation will discuss the recent development in flavor analysis such as solid phase microextraction, stir bar sorptive extraction, multidimensional GC-MS, and their applications to study the flavor and off-flavor concerns in wine, beer, tea and other food and beverages.

Host: Dr. Liu Shao Quan  
Date: 15th April, 2019, Monday  
Time: 11am to 12 pm  
Venue: Seminar room, S14-06-19

About the speaker

Dr. Michael C. Qian is a professor of flavor chemistry at Oregon State University. His research involves both basic understanding and practical application of flavor chemistry, with extensive experiences in aroma analysis involving SPME, stir bar sorptive extraction, GC/GC-O, and multi-dimensional GC-MS analysis. He has extensive publications, and have been cited 3800 times, with a h-index of 36, i10-index of 64. He was elected as a Fellow of Agricultural and Food Chemistry Division (AGFD) of the American Chemical Society, held various officer positions in the AGFD of ACS, including the Chair position of the division in 2014. He received the Distinguished Service Award from the Agricultural and Food Chemistry Division (AGFD) of the ACS in 2018.