

**Soil and Water Sciences Department  
Graduate Student Exit Seminar****Speaker: Liguang Li**  
**Ph.D. Degree Candidate****Advisor:** Dr. Zhenli He**Title: Molecular Characterization of  
Composition and Sources of Dissolved  
Organic Nitrogen in Agricultural  
Catchments****Date:** Monday, July 24, 2017**Time:** 3:00 pm – 4:00 pm**Location:** McCarty Hall A, Room G186

Nitrogen (N) is considered as a key element that triggers an algal boom in the Indian River Lagoon (IRL), South Florida. Intensive agriculture may have contributed to increased N input into the IRL. Runoff and storm water samples were collected in representative agricultural fields and along waterways that connect lands to the IRL from April 2013 to December 2014. Total N (TN) concentrations were generally above the US EPA critical level ( $0.59 \text{ mg L}^{-1}$ ) for surface water and dissolved organic N (DON) was the dominant form. Total DON compound composition showed no significant spatial and temporal variations, except for pasture ditch in fall. For unique DON compounds (present only at one site during one season) detected in the water samples, aromaticity index, aliphatic compounds, lignin, tannins, char and condensed aromatics are likely the key indicators responsible for the temporal/seasonal variation of DON molecular composition and concentration. Significant differences in unique DON composition between citrus grove and pasture ditches revealed that fertilization and land use affected DON composition and stability. Aromaticity index, intensity weight mean nominal oxidation state of carbon and nitrogen,  $\text{NO}_3\text{-N}$  and particulate N concentration control the persistence and chemodiversity index of agricultural DON compounds, while ~56% variance of DON quantity was determined by TN concentrations. Information on DON composition can facilitate the development of best management practices for reducing N loads in surrounding water bodies.

For our off-campus students, off-campus faculty, and on-campus students who cannot attend, this seminar can be viewed via live or watched at a later date via this link: [Liguang Li](#). In addition, all seminars are archived for viewing on our [SWSD Seminar Page](#).