

**Speaker:**

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Date: Monday, Nov. 23, 2020**Time:** 4:00 pm - 4:50 pm**Zoom:** 952-3324-4564**Passcode:** 835322**Title:**

“Examining the effects of imidacloprid on energy metabolism in bumble bee thorax tissue”

Abstract:

Pesticides are a major stressor that can negatively influence bumble bee populations, in part through their underlying impacts on physiology. Imidacloprid is one of the most commonly used neonicotinoids and has broad adverse effects on bumble bee cognition, reproduction, and foraging behaviors. However, it is unclear how imidacloprid affects energy metabolism in bumble bees, which includes necessary metabolic processes required for performance of flight and foraging activities. This study aims to examine the effects of the neonicotinoid pesticide, imidacloprid, on energy metabolism in bumble bee thoracic muscles by exposing bumble bee (*Bombus impatiens*) workers either chronically or acutely to a sublethal concentration of imidacloprid (5 ppb). After imidacloprid exposure, bumble bee thorax tissue was sent to the Metabolomics Core Facility at UC Riverside for targeted metabolomic analyses, focusing on central carbon metabolism. We have identified a total of 78 metabolites within the samples. Out of these 78 metabolites, we have thus far found 37 metabolites with concentrations that are significantly differentially expressed in the samples. Data analyses, such as pathway analysis, are still ongoing. Results from this research have important implications for understanding how the physiological mechanisms involved in flight and foraging can be affected by imidacloprid exposure. The goal of this research is to help us fill the gap in our understanding as to why bumble bee foraging activity and efficiency is adversely affected by neonicotinoid pesticides.