UBC Dekaban Proposals 2019

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Research Topic: Effect of irrigation on gene expression and the aromatic components of white wine grapes.

* Supervisor: Dr. John Frostad

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Research Topic #1: Jointly develop and carry out a study employing the Cantilevered-Capillary Force Apparatus (see DOI: 10.1021/la304115) to study an emulsion system of interest to the visiting scholar.

Research Topic #2: Jointly develop and carry out a study employing a Dynamic Foam Analyzer (Kruss DFA 100) to study a foaming system of interest to the visiting scholar.

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Research Topic #1: Nano-encapsulation of hemp oil for delivery of bioactives through buccal region

Research Topic #2: Novel process technologies (pulsed UV light and ultrasound) for processing of liquid foods

Research Topic #3: Extraction of bioactives from plant extracts using aqueous solvents

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Research Topic #1: Implementation of newly developed prototype farm management software for monitoring the socio-ecological outcomes at the UBC farm. Head up development of new modules for biodiversity and ecosystem service monitoring. Strong fluency in node.js and Javascript required

Research Topic #2: Undertake social surveys, workshops and focus groups with research groups, field experts, and farmers to identify common needs and requirements for farm management. Identify key knowledge gaps and knowledge transfer gaps. Design concept and plan for long- term multi-site data collection and management. Strong fluency in social science survey techniques, user based design, product development and market research required.

* Supervisor: Dr. Juli Carrillo

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Research Topic #1: Intercropping with aromatic companion plants to reduce crop pests (invasive fruitfly, *D. suzukii)* in berries. Work will be carried out at the UBC Farm and also in the UBC greenhouse.

Research Topic #2: Examining soil microbe mediated resistance to aboveground pests for tomatoes. It consists of soil inoculations with bacterial plant associated microbes and herbivory assays with specialist (*Manduca sexta*) and generalist (*Tricoplusis ni*) caterpillars.

* Supervisor Name:   Siyun Wang

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Research Topic #1: Use microbial genomics techniques to develop biological control methods to reduce the presence and growth of Salmonella in food products.

Research Topic #2: Antibiotic resistance evaluation on food products.

Research Topic #3: Risk assessment of foodborne pathogens in food supply systems.

* Supervisor Name:   Rickey Yada

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Research Topic #1: Investigation of membrane interactions of aspartic protease plant-specific insert domains.

* Supervisor: Dr. Andy Black

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Research Topic #1: Greenhouse gas emissions from agricultural crops in the Lower Fraser Valley.

Research Topic #2: Modelling the water balance of agricultural crops in the Lower Fraser Valley.

Research Topic #3: Interannual variability  of net ecosystem production and water use in a 28-year-old Douglas fir forest after nitrogen fertilization

* Supervisor: Dr. Sean Smukler

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Research Topic #1. Linking high-resolution remote sensing and field data to develop predictive hydrological models of agricultural field drainage for various management practices in the Fraser Valley, British Columbia.

Research Topic #2. Using Fourier transform infrared spectroscopy for rapid, cost effective prediction of soil, plant and soil amendment properties.