



The University of Hong Kong
School of Biological Sciences

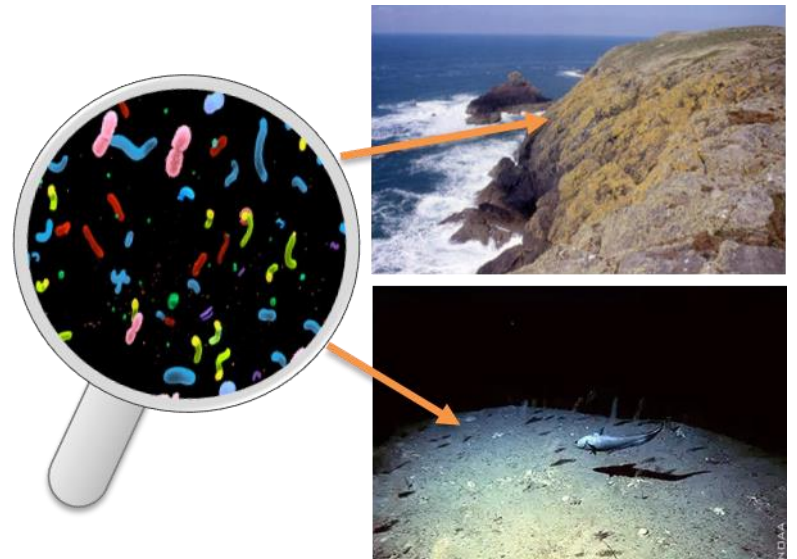
**Qualifying
Seminar**

Ecological patterns and physiological adaptations of marine bacteria in tropical extreme environments

Date: 11 November 2022

Time: 11:00 AM (HKT)

Venue: Room 6N-11 + Zoom



About the speaker:

He Yuanqiu (Hester) is a PhD student supervised by Dr. Juan Diego Gaitan-Espitia. Her research focuses on understanding the mechanisms shaping bacteria diversity and phenotypic adaptation to extreme, challenging environments in the ocean.



Abstract:

Microbes are ubiquitous in our oceans. These organisms can thrive even in some of the harshest places on Earth including tropical rocky shores and the deep sea. The extreme environmental conditions of these habitats (e.g., temperature, UV, salinity, atmospheric pressure) have influenced the diversity and evolution of marine microbes, shaping a variety of phenotypic adaptations. It is unclear, however, whether these phenotypic adaptations are underpinned by similar agents of selection (i.e., extreme environmental conditions), driving convergent evolution in microbial functional and genetic characteristics. Addressing this major knowledge gap in microbial ecology can help us to understand the generality and predictability of microbial evolution in extreme environments as well as the mechanisms underpinning enhanced tolerance to environmental stress. In my project, I will explore patterns of microbial diversity along environmental gradients in extreme marine habitats such as tropical rocky shores and the deep sea. By integrating phenotypic and molecular approaches, I will assess variations in functional and genetic characteristics of microbes (Bacteria) along the gradients, contrasting their capacities to regulate environmental stress and the associated strategies that enhance survival in extreme marine habitats. Finally, I will assess the extent to which similar selective pressures (extreme conditions) can influence similar functional, ecological and evolutionary patterns for microbial life in different extreme marine habitats. Findings of this study will help to improve our understanding of the mechanisms supporting microbial diversity and ecological success in changing and extreme environments.