Speaker: Henrik Kalisch

Title: *Ocean Waves in a Changing Climate*

Abstract:

Understanding the global climate system is one of the great scientific challenges of our time. The world's oceans cover about 70% of the Earth's surface, act as vast heat reservoir, and take up a large share of carbon dioxide from the atmosphere. As such, the oceans are at the center of the climate puzzle. In this lecture, we will consider various types of wave motion occurring in the world's oceans, rivers and lakes, including surface waves, internal waves and hydro-elastic waves in solid or fragmented ice sheets. We will examine the importance of internal waves, wave breaking and ice formation on the global ocean circulation, and we will show how mathematical modeling, scientific computing and laboratory experiments combine to improve our understanding of small-scale processes such as wave breaking and interactions with surface ice.