Abstract:

When studying supersymmetric equations from physics, Tseng and Yau introduced several Laplacians on symplectic manifolds in 2012. These Laplacians behave different from usual ones in Riemannian case and Complex case. They contain both 2nd and 4th order operators. In this talk, we will discuss these “symplectic Laplacians” and their relations with cohomologies on compact symplectic manifolds with boundary. For this purpose, we will introduce new boundary conditions for differential forms on symplectic manifolds. Their properties and importance will be discussed.