Title: Bounds on the toral rank of cohomologically symplectic spaces

Abstract: The toral rank conjecture states that in order for a torus T to act freely on a compact manifold M, it is necessary that

$$\dim_{\mathbb{Q}} H^*(M; \mathbb{Q}) \geq \dim_{\mathbb{Q}} H^*(T; \mathbb{Q}).$$

While the conjecture has been open for more than 30 years it was solved in a number of cases, including that of compact Kähler manifolds. In the talk, we investigate the algebraic topology of free torus actions on compact symplectic manifolds and try to attack the conjecture for this type of space. We obtain new cohomological obstructions to the existence of free torus actions and prove the conjecture for symplectic manifolds of dimension ≤ 8.