Research result

(1) For a given invariant Morse-Smale function, I studied the structure of the intersection of stable and unstable manifolds relative to two critical points whose Morse indices differ by 2. As a consequence, I proved that every connected component of the intersection is diffeomorphic to $S^1 \times \mathbb{R}$. This situation is similar to the one in GKM-theory.

(2) I defined Alexander type polynomial for a mixed link. I also proved a relation between the Alexander polynomial of a mixed link and the Alexander polynomial of the usual link obtained by resolving the twisted part.

(3) I introduced the notion of a representation covering, and proved that it gives an obstruction for the existence of equivariant hyperbolic dynamical systems having a certain convergence property. I also proved that the converse also holds in the case of holomorphic torus actions.