DEFENSE OF THE DOCTORAL DISSERTATION

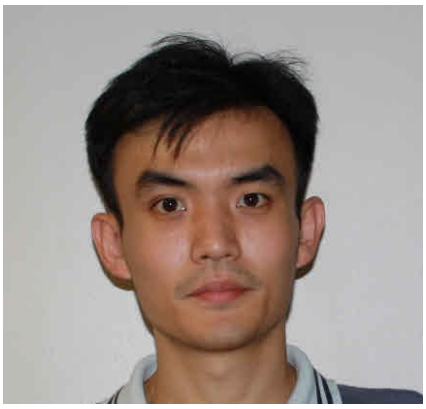
DEPARTMENT OF MATHEMATICS

"Coisotropicity of Fixed Points Under Torus Action on the Variety of Lagrangian Subalgebras"

UNIVERSITY OF NOTRE DAME
College of Science

Song Gao

Thursday, June 27, 2024
Time: 8:00 AM
Zoom URL:
http://notredame.zoom.us/j/98666804316



Examination Committee:
Sam Evens, Advisor
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Abstract:

Let g be a complex semi-simple Lie algebra with adjoint group G. Consider the standard Manin triple structure on the double Lie algebra d:= g ⊕ g and the associated variety of Lagrangian subalgebras L(d). In this thesis, we study the variety CL(d) of coisotropic subalgebras of g, which is embedded as a subvariety of L(d). The diagonal maximal torus HΔ in G × G acts on L(d) and CL(d). We describe the connected components of the fixed point set L(d)HΔ using toric varieties, and we compute the irreducible components of the fixed point set CL(d)HΔ. We provide the first examples of continuous families in CL(d)HΔ. Our results may be viewed as completing and unifying the earlier works of Zambon, Kroeger, and Le.