

TEMPLE UNIVERSITY

Department of Mathematics

Analysis Seminar

Zoom meeting

Monday, April 25 2022, 2:40 p.m.

The cohomology of left-invariant involutive structures

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Abstract: It is well known that the De Rham cohomology of a compact Lie group is isomorphic to the Chevalley-Eilenberg complex. While the former is a topological invariant of the Lie group, the latter can be computed by using simple linear algebra methods. In this talk, we discuss how to obtain an injective homomorphism between the cohomology spaces associated with left-invariant involutive structures and the cohomology of a generalized Chevalley-Eilenberg complex.

We discuss some cases in which the homomorphism is surjective, such as the Dolbeault cohomology and certain elliptic and CR structures. The results provide new insights regarding the general theory of involutive structures as, for example, they reveal algebraic obstructions for solvability for the associated differential complexes.