



## DYNAMICAL SYSTEMS SEMINAR

### Recent advances in Geometry of Flag Manifolds

Neiton P. Da Silva

Universidade Federal de Uberlândia<sup>1</sup>

Date: 06/06/2019

Time: 14:15

MAT Mini-auditorium (AT-427/08)

**Abstract.** Various authors have studied certain types of almost Hermitian manifolds with the aim of generalizing geometry Kähler. In this talk we present new invariant Einstein metrics (not Kähler) on certain flag manifold  $\mathbb{F}_\Theta$  obtained in [3]. These metrics provide interesting invariant almost Hermitian structure  $(g, J)$  not Kähler.

We say the pair  $(g, J)$  is a  $\mathcal{G}_1$  structure on  $\mathbb{F}_\Theta$  if  $g(N(X, Y), X) = 0$ , where  $N$  is the Nijenhuis tensor.

Between the 16 classes of invariant almost Hermitian structure of Gray-Hervella [5] on homogeneous spaces the most important, on flag manifolds, are Kähler structures (K), nearly Kähler (NK), quasi-Kähler (QK), almost Kähler (AK) and  $\mathcal{G}_1$  structures. The classes (K), (NK), (QK) and (AK) were completely classified on flag manifold in [1] and [2]. We also present a complete classification of  $\mathcal{G}_1$  structures on these spaces.

Joint work with Luciana A. Alves.<sup>2</sup>

## References

- [1] San Martin L. A. B.; Negreiros C. J. C. *Invariant almost Hermitian structures on flag manifolds*. Advances in Mathematics, 178, p.p. 277–310, 2003.
- [2] San Martin L. A. B., Silva R. de C. J. *Invariant nearly-Kähler structures*. Geometriae Dedicata, Vol. 121, 1, 2006, p.p. 143-154.
- [3] Da Silva N. P., Alves L. A. *Invariant Einstein metrics on generalized flag manifolds of  $Sp(n)$  and  $SO(2n)$* . Bol. Soc. Paran. Mat. (2020) To appear.
- [4] Alves, L. A.; Da Silva, N. P.  *$\mathcal{G}_1$  structures on flag manifolds*. Submitted.
- [5] A. Gray, L. M. Hervella. *The sixteen classes of almost Hermitian manifolds and their linear invariants*. Ann. Mat. Pura Appl. 123 (1980), 35–58.

---

<sup>1</sup>Email: neitonps@gmail.com

<sup>2</sup>Universidade Federal de Uberlândia. Email: luciana.postigo@gmail.com