Mathematical
Inequalities
& Applications
Volume 23, Number 1 (2020), 351–355 doi:10.7153/mia-2020-23-27

THE TRIANGLE INEQUALITY FOR GRADED REAL VECTOR SPACES

SONGPON SRIWONGSA AND KENG WIBOONTON

Abstract. In this paper, we prove that a natural candidate for a homogeneous norm on a graded Lie algebra of any length satisfies the triangle inequality, which answers Moskowitz's question in [2].

Mathematics subject classification (2010): 17B70, 22E25, 26D15.
Keywords and phrases: Graded Lie algebra, subadditive homogeneous norm.

REFERENCES

[1] M. MOSKOWITZ, *An extension of Minkowski's convex body theorem to certain simply connected nilpotent groups*, Portugaliae Mathematica, 67, 4, 2010, 541–546.
[2] M. MOSKOWITZ, *The triangle inequality for graded real vector spaces of length 3 and 4*, Math. Inequal. Appl., 17, 3, 2014, 1027–1030.
[3] C. P. NICULESCU AND L.-E. PERSSON *Convex functions and their applications, A comtemporary approach*, CMS Books in Mathematics, vol. 23, Springer Verlag, New York, 2006.
[4] J. M. STEELE, *The Cauchy-Schwarz master class*, Cambridge University Press, Cambridge, 2004.

© ELEMENT, Zagreb