Library
Indian Institute of Science Education and Research Mohali

DSpace@IISERMohali (/jspui/)
/ **Publications of IISER Mohali (/jspui/handle/123456789/4)**
/ **Research Articles (/jspui/handle/123456789/9)**

Please use this identifier to cite or link to this item: `http://hdl.handle.net/123456789/91`

Title:	On the existence of an invariant non-degenerate bilinear form under a linear map
Authors:	Gongopadhyay, Krishnendu (/jspui/browse?type=author&value=Gongopadhyay%2C+Krishnendu)
Keywords:	Bilinear form Linear maps Non-trivial
Issue Date:	2011
Publisher:	Elsevier Inc
Citation:	Linear Algebra and Its Applications, 434 (1), pp. 89-103

Abstract:	Let V be a vector space over a field F. Assume that the characteristic of F is large, i.e. char(F)>dimV. Let T:V→V be an invertible linear map. We answer the following question in this paper. When does V admit a T-invariant non-degenerate symmetric (resp. skew-symmetric) bilinear form? We also answer the infinitesimal version of this question. Following Feit and Zuckerman 2, an element g in a group G is called real if it is conjugate in G to its own inverse. So it is important to characterize real elements in GL(V,F). As a consequence of the answers to the above question, we offer a characterization of the real elements in GL(V,F). Suppose V is equipped with a non-degenerate symmetric (resp. skew-symmetric) bilinear form B. Let S be an element in the isometry group I(V,B). A non-degenerate S-invariant subspace W of (V,B) is called orthogonally indecomposable with respect to S if it is not an orthogonal sum of proper S-invariant subspaces. We classify the orthogonally indecomposable subspaces. This problem is non-trivial for the unipotent elements in I(V,B). The level of a unipotent T is the least integer k such that (T-I)k=0. We also classify the levels of unipotents in I(V,B). © 2010 Elsevier Inc. All rights reserved.

Description:	Only IISERM authors are available in the record.
URI:	http://www.sciencedirect.com/science/article/pii/S0024379510004179 (http://www.sciencedirect.com/science/article/pii/S0024379510004179)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/91/3/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/1234567...

Show full item record (/jspui/handle/123456789/91?mode=full)   (/jspui/handle/123456789/91/statistics)