

1135-15-1841

Uladzimir L Shtukar* (vshtukar@yahoo.com), 1906 Raj Drive, Durham, NC 27703. *Reduced Row Echelon Forms of Matrices, Canonical Bases for Subspaces of vector Spaces, and Subalgebras of Lie Algebras*. Preliminary report.

Canonical bases for subspaces of vector spaces are introduced to be such that generate the matrix in reduced row echelon form. They are classified for $(n-1)$ -dimensional and $(n-2)$ -dimensional subspaces. It is proved that the total number of all nonequivalent canonical bases is equal the number of m -combinations from n given numbers. Subalgebras of two important Lie algebras are found utilizing canonical bases. One of them is 6-dimensional Lie algebra of Lorentz group. (Received September 25, 2017)