

1163-13-691

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*Non-commutative Rank and Stability of Quiver Representations.* Preliminary report.

We start with  $n \times n$  matrices  $A_1, \dots, A_m$ , and consider the matrix  $A = x_1A_1 + \dots + x_mA_m$ . We would like to determine the rank of  $A$ , where  $x_1, \dots, x_m$  are viewed as non-commuting generators of a free skew-field. This is the non-commutative rank of  $A$ . Finding this rank is related to the stability of a representation of a Kronecker quiver. We generalize this non-commutative rank to any acyclic quiver representation. (Received September 11, 2020)