1167-47-272   **Christina Pospisil*** (`pospisil.christina@gmx.de`), pospisil.christina@gmx.de. *Generalization Theory of Linear Algebra III.*

This talk continues the presentations Generalization Theory of Linear Algebra I+II from JMM 2019 Conference and JMM 2020 Conference. In the first part an algorithm for multiplying and adding matrices regardless of dimensions via an embedding and inverses for non-injective mappings in one dimension were presented (first part was presented at the JMM 2019 Conference). The second part presented inverses for non-injective mappings in multiple dimensions, inverses for non-surjective mappings in one and multiple dimensions and introduced a general determinant theory (second part was presented at the JMM 2020 Conference). The third part is dedicated to a further generalization regarding tensors with first applications in physics. In future work there will be further operations and applications to physics and other natural sciences be explored. JMM = Joint Mathematics Meeting (Received March 08, 2021)