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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 and JMM 2020. 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 JMM 2019). 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 JMM 2020). 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. (Received October 17, 2020)