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Autore	Denker Sophia
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Nota di contenuto	Introduction -- Physical and mathematical background -- OSD witnesses for bipartite states -- The OSD witness for the multipartite case -- Schmidt number witnesses -- Conclusion and outlook.
Sommario/riassunto	Characterizing entanglement is an important issue in quantum information, as it is considered to be a resource for many applications such as quantum key distribution or quantum metrology. One useful tool to detect and quantify entanglement are witness operators. A standard way to construct them is based on the fidelity of pure states and mathematically relies on the Schmidt decomposition of vectors. In this book a method to build entanglement witnesses using the Schmidt decomposition of operators is presented. One can show that these are strictly stronger than the fidelity witnesses. Moreover, the concept can be generalized easily to the multipartite case, and one may use it to quantify the dimensionality of entanglement. Finally, this scheme will be used to provide two algorithms that can be combined to improve given witnesses for multiparticle entanglement. About the author Sophia Denker studied physics at the University of Siegen. Now she is investigating concepts of high dimensional entanglement under the

tutelage of Prof. Dr. Otfried Gühne. Her master thesis was awarded with the “Studienpreis des Landkreises Altenkirchen 2023”.
