

# A NOTE ON THE EMBEDDING OF HERMITIAN UNITALS IN PROJECTIVE PLANES

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Recently, Korchmáros, Siciliano and Szőnyi [1] proved the uniqueness of the embedding of the classical Hermitian unital in Desarguesian planes. In this talk, we present a shorter proof for the case of characteristic two. Our results are based on a more precise description of full points and perspectivity groups of the abstract Hermitian unital.

An important part of this research was to implement the GAP package UnitalSZ [2], which can do basic calculations on abstract unitals of small order. Using this package, we obtained new non-embeddability results of unitals of order 3 and 4.

This is a joint work with Gábor P. Nagy from the Budapest University of Technology.

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- [1] G. KORCHMÁROS, A. SICILIANO, T. SZŐNYI, Embedding of classical polar unitals in  $PG(2, q^2)$ , *Journal of Combinatorial Theory Series A* **153** (2018), 67–75.
- [2] Mezőfi, D. and Nagy, G. P., UnitalSZ, Algorithms and libraries of abstract unitals and their embeddings, Version 0.5 (2018), (GAP package), <https://nagygp.github.io/UnitalSZ/>.