

# The valuations of the near polygon $\mathbb{G}_n$

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After giving an introduction to general (dense) near polygons and their valuations, we take a look to the dense near  $2n$ -gon  $\mathbb{G}_n$ . Explicit descriptions of the valuations of the near polygons  $\mathbb{G}_3$  and  $\mathbb{G}_4$  were given in respectively [1] and [2]. An explicit description of all the valuations of  $\mathbb{G}_n$  seems not feasible for general  $n$ , but still it is possible to obtain a complete classification of these objects in the following sense: each valuation of  $\mathbb{G}_n$ ,  $n \geq 2$ , is induced by a unique classical valuation of the Hermitian dual polar space  $DH(2n - 1, 4)$  into which  $\mathbb{G}_n$  is isometrically embeddable ([3]).

## References

- [1] B. De Bruyn and P. Vandecasteele. The distance-2-sets of the slim dense near hexagons. *Ann. Comb.* 10 (2006), 193–210.
- [2] B. De Bruyn and P. Vandecasteele. The valuations of the near octagon  $\mathbb{G}_4$ . preprint. See <http://cage.ugent.be/geometry/>
- [3] B. De Bruyn. The valuations of the near polygon  $\mathbb{G}_n$ . preprint. See <http://cage.ugent.be/geometry/>