

Embedding D-optimal designs of order $n - 1$ or $n + 1$

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Research problem:

Construct the D-optimal designs D_{10} , D_{11} , D_{14} , and D_{15} and search for submatrices that may satisfy the following embedding relations:

a) $D_9 \in D_{10}$ and $D_{10} \in D_{11}$

b) $D_{13} \in D_{14}$ and $D_{14} \in D_{15}$

If such submatrices exist, determine:

- how many arise for each case,
- the size of their determinant,
- the parameter p associated with their determinant.

$$d_9 = 58 \cdot 2^8$$

$$d_{10} = 144 \cdot 2^9$$

$$d_{11} = 320 \cdot 2^{10}$$

$$d_{13} = 3645 \cdot 2^{12}$$

$$d_{14} = 9477 \cdot 2^{13}$$

$$d_{15} = 25515 \cdot 2^{15}$$

$$d_{17} = 327680 \cdot 2^{16}$$

$$d_{18} = 1114212 \cdot 2^{17}$$

$$d_{19} = 3411968 \cdot 2^{18}$$