Table 3 designs

3 DESIGNS

n	Cardinality C												
n	2n+1	2n+3	2n+5	2n+7	2n+9	2n+11	2n+13	2n+15	2n+17	2n+19	2n+21	2n+23	2n+25
3	7*	9	⌊11										
4	9*	⌊11											
5	11*	13	⌊15										
6	13*	⌊15											
7	15*	17○	⌊19										
8	17*	19◊	⌊21										
9	19*	21•	⌊23										
10	21*	23•	⌊25										
11	23*	25*	27	⌊29									
12	25*	27*	29○	⌊31									
13	27*	29*	31◊	⌊33									
14	29*	31*	33◊	⌊35									
15	31*	33*	35•	37	⌊39								
16	33*	35*	37•	39○	⌊41								
17	35*	37*	39•	41○	⌊43								
18	37*	39*	41•	43◊	⌊45								
19	39*	41*	43*	45◊	47	⌊49							
20	41*	43*	45*	47◊	49	⌊51							
21	43*	45*	47*	49•	51○	⌊53							
22	45*	47*	49*	51•	53○	⌊55							
23	47*	49*	51*	53•	55◊	57	⌊59						
24	49*	51*	53*	55•	57◊	59	⌊61						
25	51*	53*	55*	57•	59◊	61	⌊63						
26	53*	55*	57*	59•	61◊	63○	⌊65						
27	55*	57*	59*	61*	63•	65○	67	⌊69					
28	57*	59*	61*	63*	65•	67◊	69	⌊71					
29	59*	61*	63*	65*	67•	69◊	71	⌊73					
30	61*	63*	65*	67*	69•	71◊	73	⌊75					

Table 3 designs

31	63*	65*	67*	69*	71•	73◊	75○	77	⌊79				
32	65*	67*	69*	71*	73•	75•	77○	79	⌊81				
33	67*	69*	71*	73*	75•	77•	79◊	81	⌊83				
34	69*	71*	73*	75*	77•	79•	81◊	83	⌊85				
35	71*	73*	75*	77*	79*	81•	83◊	85○	87	⌊89			
36	73*	75*	77*	79*	81*	83•	85◊	87○	89	⌊91			
37	75*	77*	79*	81*	83*	85•	87◊	89○	91	⌊93			
38	77*	79*	81*	83*	85*	87•	89•	91◊	93	⌊95			
39	79*	81*	83*	85*	87*	89•	91•	93◊	95	97	⌊99		
40	81*	83*	85*	87*	89*	91•	93•	95◊	97○	99	⌊101		
41	83*	85*	87*	89*	91*	93•	95•	97◊	99○	101	⌊103		
42	85*	87*	89*	91*	93*	95*	97•	99◊	101○	103	⌊105		
43	87*	89*	91*	93*	95*	97*	99•	101◊	103◊	105	107	⌊109	
44	89*	91*	93*	95*	97*	99*	101•	103•	105◊	107	109	⌊111	
45	91*	93*	95*	97*	99*	101*	103•	105•	107◊	109○	111	⌊113	
46	93*	95*	97*	99*	101*	103*	105•	107•	109◊	111○	113	⌊115	
47	95*	97*	99*	101*	103*	105*	107•	109•	111◊	113○	115	117	⌊119
48	97*	99*	101*	103*	105*	107*	109•	111•	113◊	115◊	117	119	⌊121
49	99*	101*	103*	105*	107*	109*	111•	113•	115◊	117◊	119○	121	⌊123
50	101*	103*	105*	107*	109*	111*	113*	115•	117•	119◊	121○	123	⌊125

KEY :

⌊m - design with cardinality |C| ≥ m exists by [1];

m* - nonexistence by [2] and [3];

m• - nonexistence by [4];

m◊ - nonexistence by [5] and [6];

m○ - nonexistence by [7] and [8];

m   - open case

[1] B. Bajnok, Constructions of spherical 3 designs, Graphs and Combinatorics, 14, 1998, pp. 97-107.

[2] P. Boyvalenkov, D. Danev, S. Nikova, Nonexistence of certain spherical designs of odd strengths and cardinalities, Discr. Comp. Geom., 21, 1999, pp. 143-156.

Table 3 designs

[3] S. Boumova, P. Boyvalenkov, D. Danev, Necessary conditions for existence of some designs in polynomial metric space, Europ. J. Combin. 20, 1999, pp. 213-225.

[4] S. Boumova, P. Boyvalenkov, D. Danev, New nonexistence results for spherical designs, in Constructive Theory of Functions, (B.Bojanov, Ed.) Darba, Sofia 2003, pp. 225 - 232.

[5] S. Boumova, P. Boyvalenkov, H. Kulina, M. Stoyanova, Polynomial technics for investigation of spherical designs, Designs, Codes and Cryptography, 2009, Vol. 51, Issue 3, pp. 275-288, (Published online: 19 December 2008).

[6] S. Boumova, P. Boyvalenkov, M. Stoyanova, A method for proving nonexistence of spherical designs of odd strength and odd cardinality, Problems of Information Transmission, 2009, Vol. 45, No. 2, pp. 110-123, (Original Russian Text Published in Problemy Peredachi Informatsii, 2009, Vol. 45, No. 2, pp. 41-55).

[7] P. Boyvalenkov, M. Stoyanova, Improved approaches for investigation of small spherical designs, Compt. rend. Acad. bulg. Sci., 2012, (to appear).

[8] P. Boyvalenkov, M. Stoyanova, New nonexistence results for spherical designs, Advances in Mathematics of Communications, 2013, Vol. 7, No. 3, pp. 279 - 292, (Received: July 2012, Revised: March 2013, Available online: July 2013).