

# Творческа биография

Петър Георгиев Бойваленов

Институт по математика и информатика, Българска Академия на Науките

## Академична история

- Магистър по математика: Факултет по математика и информатика, Софийски Университет, 1989
- Докторантура: Координационен център по информатика и изчислителна техника 1990-1993
- Кандидат на математическите науки (ОНС доктор) – защита на 17 ноември 1993 (Граници за опаковки в Евклидови пространства, научен ръководител: проф. дмн Стефан Додунеков)
- Специализация: Technische Universitaet, Braunschweig, Germany, October 1991 - July 1992 (TEMPUS)
- Доктор на математическите науки – защита на 23 февруари 2003 г. (Граници на линейното програмиране за сферични кодове и дизайни)

## Научни интереси

- Алгебра (Линейна алгебра над крайни полета и в евклидови пространства)
- Геометрия (Структура и граници за кодове и дизайни в полиномиални метрични пространства, опаковки и покрития)
- Комбинаторика (Ортогонални масиви, t-дизайни, силно регулярни графи, асоциативни схеми, сферични дизайни)
- Теория на кодирането (Енергия и поляризация на кодове, граници за кодове, оптимални кодове)

**Езици:** Български, руски, английски – свободно писмено и говоримо

## Месторабота

- Професор: Институт по математика и информатика, Българска Академия на Науките от октомври 2010 г. (асистент III-I ст. 1993-97, ст.н.с. II ст. 1997-2010, зам.-директор 2015-2021, директор от март 2021 г.)
- Частичен трудов договор: Югозападен университет „Н. Рилски“ (2002-2020)
- Гост-професор: Purdue University Fort Wayne, Fall semester 2018, Fall semester 2020.

## Изследователски визити/специализации

1. Department of Electrical Engineering, Linköping University, Sweden, 01.02-31.03.1996, 01-30.04.1998
2. Department of Mathematics and Computing Sciences, Eindhoven University, The Netherlands, 01.02-31.03.1998, 01.07-31.08.2001
3. Faculty of Information Technology and Systems, Delft University, The Netherlands, 01-29.09.1999
4. Institute of Information Transmission Problems, Russian Academy of Sciences, Moscow, Russia, 21-27.09.2008, 27.10-8.11.2013
5. Department of Mathematical Sciences and the Center for Applied Mathematics and Statistics at Indiana University-Purdue University, Fort Wayne, Indiana, USA, 10.05-05.06.2014, 23.02-25.03.2015, 25.04-13.05.2017

6. Center for Constructive Approximation, Department of Mathematics, Vanderbilt University, 01-13.10.2016
7. Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, Providence, USA, 22.02-23.03.2018
8. Research in Pairs, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, 26.05-08.06.2019
9. St.-Petersburg Electrotechnical University LETI, St. Petersburg, Russia, 26.10-5.11.2019

### **Преподавателска дейност**

- Упражнения по линейна алгебра, висша алгебра, ЛААГ (СУ) – над 600 часа през 1990-1994
- Лекции – Кодове и дизайни в полиномиални метрични пространства и Сферични кодове и дизайни (СУ) 1996-97 и 2000-02 – 90 часа
- Лекции – Теория на числата (2002-07), Алгебра (2006), Комбинаторика, кодиране и криптография (2002-20), Кодиране и защита на информацията (2003-20) в ЮЗУ – над 1000 часа
- Лекции –Кодиране и криптография (2009-11) в ПУ – 120 часа
- Лекции –Увод в криптографията (2010-12) в НБУ – 180 часа
- Лекции – Дискретна математика 2018, 2020 Purdue University Fort Wayne, Indiana, USA – 200 часа
- Лекции – Теория на кодирането и криптография 2018, 2020 Purdue University Fort Wayne, Indiana, USA – 100 часа

### **Докторанти, дипломанти и специализанти**

- Докторанти (10 защитили):
  1. Светла Никова (защитила 1998 в ТУ Айндховен; *Bounds for designs in infinite polynomial metric spaces*)
  2. Петър Казаков (защитил 2000 в ТУ Делфт; *Applications of polynomials to CRC and spherical codes*)
  3. Силвия Бумова (защитила 2002 в ТУ Айндховен; *Applications of polynomials to spherical codes and designs*)
  4. Мая Стоянова (защитила 2009 в СНС; *Върху структурата на някои сферични кодове и дизайни*)
  5. Нина Добринкова (защитила 2012 в ИМИ; *Информационни системи за симулация на поведението на горски и полски пожари*)
  6. Христина Кулина (защитила 2013 в ИМИ; *Дизайни в антиподадни полиномиални метрични пространства*)
  7. Маргарита Тодорова (защитила 2014 в ЮЗУ; *Изследване на класове алгоритми за разпознаване на образи*)
  8. Роберт Ценков (защитил 2017 в ИМИ; *Изследване на условията за линеен криптоанализ в Мрежи на Файстел*)
  9. Георги Добринков (защитил 2018 в ИМИ; *Информационни системи и методи за адаптиране на горивни модели при симулации на горски пожари*)
  10. Константин Делчев (защитил 2021 в ИМИ); *Кодове и дизайни в полиномиални метрични пространства*)
  11. Навид Сафай (предстояща защита 2025)
  12. Мила Сукалинска, Михаил Иванов (незащитили; ЮЗУ).

- Дипломанти и специализанти (8 защитили): Светла Никова (ФМИ-СУ, 1993-5), Петър Казаков (ФМИ-СУ, 1994-6), Даньо Данев (ФМИ-СУ, 1994-6), Силвия Бумова (ФМИ-СУ, 1994-6), Мария Митраджиева (ФМИ-СУ, 1995-7), Десислава Станоева (2002-3), Нина Добринкова (ПМФ-ЮЗУ, 2007-8), Mathieu Jourdain (Ecole St Cyr, 2017-18).

### **Доклади на международни форуми**

1. Third International Workshop on Algebraic and Combinatorial Coding Theory, Voneshta voda, Bulgaria, June 1992
2. First French-Israeli Workshop on Algebraic Coding, Paris, France, July 1993.
3. Sixth Swedish-Russian Workshop on Information Theory, Mölle, Sweden, August 1993.
4. 1994 IEEE International Symposium on Information Theory, Trondheim, Norway, June 1994.
5. Fourth International Workshop on Algebraic and Combinatorial Coding Theory, Novgorod, Russia, September 1994.
6. Second Israeli-French Workshop on Coding and Information Integrity, Tel-Aviv, Israel, December 1994.
7. First International Workshop on Optimal Codes, Sozopol, Bulgaria, May 1995 (two talks).
8. International Symposium AAECC-11, Paris, France, July 1995.
9. Fifth International Workshop on Algebraic and Combinatorial Coding Theory, Sozopol, Bulgaria, June 1996 (three talks).
10. International Symposium AAECC-12, Toulouse, France, June 1997.
11. 1997 IEEE International Symposium on Information Theory, Ulm, Germany, June 1997 (two talks).
12. Second International Workshop on Optimal Codes, Sozopol, Bulgaria, June 1998.
13. Sixth International Workshop on Algebraic and Combinatorial Coding Theory, Pskov, Russia, Sept. 1998.
14. DIMACS Workshop on Association Schemes, Piscataway, USA, November 1999.
15. Seventh International Workshop on Algebraic and Combinatorial Coding Theory, Bansko, Bulgaria, June 2000.
16. International workshop on Information Theory, Balatonlelle, Hungary, July 2000.
17. Third International Workshop on Optimal Codes, Sunny Beach, Bulgaria, June 2001.
18. Eight International Workshop on Algebraic and Combinatorial Coding Theory, Tsarskoe Selo, Russia, September 2002.
19. International Conference Constructive Theory of Functions 2002, Varna, Bulgaria, June 2002.
20. Ninth International Workshop on Algebraic and Combinatorial Coding Theory, Kranevo, Bulgaria, June 2004.
21. Fourth International Workshop on Optimal Codes, Pamporovo, Bulgaria, June 2005.
22. Second International Congress MICOM of MASSEE, Pafos, Cyprus, June 2006.
23. Tenth International Workshop on Algebraic and Combinatorial Coding Theory, Zvenigorod, Russia, September 2006.
24. International Scientific Conference FMNS-2007 of SWU, Blagoevgrad, Bulgaria, June 2007.
25. Fifth International Workshop on Optimal Codes, Balchik, Bulgaria, June 2007.
26. Eleventh International Workshop on Algebraic and Combinatorial Coding Theory, Pamporovo, Bulgaria, June 2008.
27. Sixth International Workshop on Optimal Codes, Varna, Bulgaria, June 2009.
28. Third International Congress MICOM of MASSEE, Ohrid, Macedonia, Sept. 2009.
29. Twelfth International Workshop on Algebraic and Combinatorial Coding Theory, Novosibirsk, Russia, September 2010.
30. Thirteenth International Workshop on Algebraic and Combinatorial Coding Theory, Pomorie, Bulgaria, June 2012.
31. Seventh International Workshop on Optimal Codes, Albena, Bulgaria, September 2013.
32. Colloquium at Department of Mathematical Sciences, Indiana-Purdue University in Fort Wayne, USA, May 22, 2014.
33. Constructive Functions 2014, Nashville, USA, May 24-31, 2014.
34. Fourteenth International Workshop on Algebraic and Combinatorial Coding Theory, Svetlogorsk, Russia, September 2014 (2 talks).
35. ESI programme on Minimal energy point sets, lattices and designs, Vienna, Austria, October 27-31, 2014.
36. 125 years of Mathematics and Natural Sciences at Sofia University St. Kliment Ohridski, Sofia, Bulgaria, December 5-7, 2014.

37. Shanks Workshop on Linear Programming Bounds for Minimal Energy Problems, Vanderbilt University, Nashville, USA, March 13-15, 2015.
38. Workshop on Coding and Cryptography, April 13-17, 2015, Paris, France.
39. 2015 Workshop on Combinatorics and Applications at SJTU, April 21-27, Shanghai Jiao Tong University, Shanghai, China.
40. Groups and Rings, Theory and Applications, GRITA2015, July 15-22, 2015 - Sofia, Bulgaria.
41. Tenth Summer School on Potential Theory, August 18-23, 2015, Budapest, Hungary (invited speaker, 2 talks).
42. International Congress on Mathematics MICOM-2015, September 22-26, 2015, Athens, Greece (3 talks).
43. Joint Annual Meeting of DMV and GAMM, March 7-11, 2016, Braunschweig, Germany.
44. Seminar ITMO University, St.Petersburg, Russia, April 26, 2016.
45. International Conference on Constructive Theory of Functions, June 11-17, 2016, Sozopol, Bulgaria.
46. Fifteenth International Workshop on Algebraic and Combinatorial Coding Theory, June 18-24, 2016, Albena, Bulgaria (two talks).
47. XV International Symposium "Problems of Redundancy in Information and Control Systems", September 26-29, 2016, St. Petersburg, Russia.
48. Midwestern Workshop on Asymptotic Analysis, October 7-9, 2016, Fort Wayne, USA (invited talk).
49. Seminar of Faculty of Computer Science and Engineering, Skopje University, October 20, 2016.
50. Information Security and Protection of Information Technologies Seminar, April 5-7, 2017, St. Petersburg, Russia (invited talk).
51. Ninth Discrete Geometry and Algebraic Combinatorics Conference, May 1-6, 2017, South Padre Island, USA.
52. Department of Mathematical Sciences Colloquium series, Purdue University Fort Wayne, USA, May 10, 2017.
53. Workshop on Coding and Cryptography, September 18-22, 2017, St. Petersburg, Russia.
54. ICERM Semester program on "Point configurations in Geometry, Physics and Computer Science", March 2018.
55. Seminar at Institute of Mathematics and Mechanics, Ural Branch of Russian Academy of Sciences, April 26, 2018.
56. Seminar at Institute of Natural Sciences and mathematics Ural Federal University, April 27, 2018.
57. Sixteenth International Workshop on Algebraic and Combinatorial Coding Theory, Svetlogorsk, Russia, September 2-8, 2018 (2 talks).
58. Department of Mathematical Sciences Colloquium, Purdue University Fort Wayne, USA, October 24, 2018.
59. Workshop on Coding and Cryptography, 31 March - 5 April, 2019, Saint-Jacut-de-la-Mer, France.
60. Ninth Congress of Romanian Mathematicians, 28 June - 3 July, 2019, Galati, Romania (invited talk).
61. 2019 IEEE International Symposium on Information Theory, Paris, France, July 7-11, 2019.
62. XVI International Symposium "Problems of Redundancy in Information and Control Systems", October 21-25, 2019, Moscow, Russia (plenary talk).
63. III International Conference on Control in Technical Systems CTS'2019, 30 October - 1 November 2019, St. Petersburg, Russia (plenary talk).
64. Seventeenth International Workshop on Algebraic and Combinatorial Coding Theory, online, October 11-17, 2020.
65. International seminar „Problems and Methods Related to Coding Theory“, IMI-BAS, Novosibirsk State University, Novosibirsk, Russia, Sobolev Institute of Mathematics, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia, March 2, 2021.
66. Moscow Conference on Combinatorics and Applications, online, Moscow, June 28 - July 2, 2021.
67. XVII International Symposium "Problems of Redundancy in Information and Control Systems", online, October 25-29, 2021, Moscow, Russia.
68. The 10th International Workshop on Signal Design and its Applications in Communications, Colchester, UK, August 1-5, 2022.
69. International Conference on Approximation Theory and Beyond, Vanderbilt University, Nashville, Tennessee, USA, May 15-18, 2023.
70. International Conference Constructive Theory of Functions - 2023, Lozenets, Bulgaria, June 11-15, 2023.

71. International Conference on Finite Fields and Their Applications 2023 (Fq15), Paris, France, June 19-23, 2023.
72. 14th International Mathematical Week 2024, Thessaloniki, April 14-21, 2024 (invited talk).  
(at least one talk each year at the National Seminar on Coding Theory, since 1992).

### **Членство в професионални общности**

Съюз на математиците в България (Зам.-председател на УС от юли 2017)

Mathematical Association of South Eastern Europe (Vice-president 2019-2021, член на Съвета от 2017)

### **Участие в програмни и организационни комитети**

1. Programme Committee of Sixth International Workshop on Algebraic and Combinatorial Coding Theory, Novgorod, Russia, September 1998.
2. Organizing Committee of Second International Workshop on Optimal Codes, Sozopol, Bulgaria, June 1998.
3. Programme Committee of Seventh International Workshop on Algebraic and Combinatorial Coding Theory, Bansko, Bulgaria, June 2000.
4. Organizing Committee of Third International Workshop on Optimal Codes, Sunny Beach, Bulgaria, June 2001.
5. Organizing Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Borovetz, Bulgaria, April 2002.
6. Programme Committee of Eight International Workshop on Algebraic and Combinatorial Coding Theory, Tsarskoe Selo, Russia, September 2002.
7. Programme Committee (secretary) of First International Congress MASSEE, Borovets, Bulgaria, September 2003.
8. Programme Committee of Ninth International Workshop on Algebraic and Combinatorial Coding Theory, Kranevo, Bulgaria, June 2004.
9. Organizing Committee of Fourth International Workshop on Optimal Codes, Pamporovo, Bulgaria, June 2005.
10. Programme Committee of Tenth International Workshop on Algebraic and Combinatorial Coding Theory, Zvenigorod, Russia, September 2006.
11. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Varna, Bulgaria, April 2007.
12. Organizing Committee of Fifth International Workshop on Optimal Codes, White Lagoon, Bulgaria, June 2007.
13. Programme Committee of Eleventh International Workshop on Algebraic and Combinatorial Coding Theory, Pamporovo, Bulgaria, June 2008.
14. Organizing Committee of Sixth International Workshop on Optimal Codes, Varna, Bulgaria, June 2009.
15. Programme Committee of Twelfth International Workshop on Algebraic and Combinatorial Coding Theory, Novosibirsk, Russia, September 2010.
16. Programme Committee of Thirteenth International Workshop on Algebraic and Combinatorial Coding Theory, Pomorie, Bulgaria, June 2012.
17. Organizing Committee of Sixth International Workshop on Optimal Codes, Albena, Bulgaria, Sept. 2013.
18. Organizing Committee of Fourteenth International Workshop on Algebraic and Combinatorial Coding Theory, Svetlogorsk, Russia, September 2014 (co-chair).
19. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Kamchia, Bulgaria, April 2015.
20. Organizing Committee of Fifteenth International Workshop on Algebraic and Combinatorial Coding Theory, Bulgaria, June 2016 (co-chair).
21. Organizing Committee of Seventh International Workshop on Optimal Codes, Sofia, Bulgaria, July 2017 (chairman).
22. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Borovec, Bulgaria, April 2018 (chairman).
23. Organizing Committee of Sixteenth International Workshop on Algebraic and Combinatorial Coding Theory, Svetlogorsk, Russia, September 2018 (co-chair).

24. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Borovec, Bulgaria, April 2019.
25. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Varna, Bulgaria, September 2020.
26. Organizing Committee of Seventeenth International Workshop on Algebraic and Combinatorial Coding Theory, online, October 2020 (co-chair).
27. Programme Committee of Mathematics Days in Sofia, July 2020 (cancelled).
28. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Burgas, Bulgaria, September 2021.
29. Programme Committee of International Conference "Automatics and Informatics", Varna, Bulgaria, September 2021 (on-line).
30. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Tryavna, Bulgaria, April 2022.
31. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Borovec, Bulgaria, April 2023.
32. Programme Committee of Sphere packings, coverings, and spherical codes, Sofia, Bulgaria, May 2023 (chair).
33. Organizing Committee of Constructive theory of functions, Lozenets, Bulgaria, June 2023.
34. Organizing Committee of International Conference "Mathematics Days in Sofia", Sofia, Bulgaria, July 2023 (Chair).
35. Programme Committee of Spring Conference of the Union of the Bulgarian Mathematicians, Borovec, Bulgaria, April 2024.
36. Scientific Committee of Constructive Functions 2025 (in conjunction with the 37th Shanks Lecture), Celebrating Ed Saff's 80th birthday, Vanderbilt University, Nashville, Tennessee, USA, May 19-22, 2025.  
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## **Участие в проекти**

### **а) Международни**

1. Участник: Displaced Scientists, Conferences (with Simons Foundation) май 2022 – май 2025, бюджет на ИМИ – 600 000 USD.
2. Ръководител за ИМИ: Investigations on orthogonal arrays, covering radius, LCD codes and flag codes (съвместно с Tubitak, Турция), април 2024 – април 2026, бюджет на ИМИ – 3000 евро.
3. Ръководител и участник: ISPAS Paths to Successful Innovations (H2020-SwafS-2020-1), 2021 г., поради отсъствие от страната ръководството е поето от доц. Александрова след началото на проекта, бюджет на ИМИ – над 39 000 евро.
4. Участник: K-TRIO 5 Researchers in the Knowledge Triangle, 2021 г., бюджет на ИМИ – 11 000 евро.
5. Ръководител и участник: K-TRIO 4 Researchers in the Knowledge Triangle (H2020-MSCA-NIGHT-2020), 2020 г., поради отсъствие от страната ръководството е поето от доц. Харизанов след началото на проекта, бюджет на ИМИ – 13 500 евро.
6. Ръководител за ИМИ като изпълнител по договор с МОН за организирането и провеждането на European Union Contest of Young Scientists 2019 (EUCYS2019) – 13-18 септември 2019 г., бюджет на ИМИ – над 140 000 евро.
7. Ръководител за ИМИ като Партньор 6: OUTLAND (B2.11.02) Open protocols and tools for the education and Training of voluntary organisations in the field of Civil Protection, against

natural Disasters (forest fires) in Greece and Bulgaria, NSRF 2007-2013 Greece - Bulgaria European Territorial Cooperation OP, 2012-2014: финансиран от ERDF, бюджет на ИМИ – над 90 000 евро.

Проекти 1-6 са в последните 5 години.

#### б) Национални

1. Ръководител (председател на ИС) за ИМИ: Научна програма „Повишаване на изследователския капацитет в областта на математическите науки“ (ПИКОМ) 2022-2025 (в партньорство с ФМИ-СУ), финансираща институция: МОН, бюджет 2 000 000 лв.
2. Ръководител: КР-06-N72/6-2023 Алгебрични, геометрични и комбинаторни методи в теория на кодирането (ФНИ 2023-2027), бюджет – 150 000 лв.
3. Ръководител за БАН и на Компонент 1: Национална научна програма „Информационни и комуникационни технологии за единен цифров пазар в науката, образованието и сигурността“ (ИКТ в НОС) 2018-2021, Финансираща институция: МОН, бюджет на БАН – над 820 000 лв.
4. Ръководител за ИМИ: Национален център за високопроизводителни и разпределени изчисления“, координиран от ИИКТ-БАН. Договор ДО1-0901-102/03.12.2018, програма: Националната пътна карта за научна инфраструктура 2017-2023 и 2020-2027, Финансираща институция – МОН, бюджет на ИМИ – над 100 000 лв.
5. Ръководител: КР-06-N32/2-2019 Алгебрични и комбинаторни методи за защита на информацията (ФНИ 2019-2023), бюджет на ИМИ – 120 000 лв.
6. Ръководител: КР-06-Русия/33-2020 Алгебрични, комбинаторни и геометрични проекти в теория на кодирането (ФНИ 2020-2022), бюджет на ИМИ – 40 000 лв.
7. Участник: Национална научна програма „Сигурност и отбрана“ (2022-2025), бюджет на ИМИ – 20 000 лв.
8. Участник: DN02/2-2016 Кодове и комбинаторни конфигурации (ФНИ 2016-2020), ръководител проф. дмн Илия Буюклиев, бюджет 120 000 лв.
9. Участник: IO1/0003-26.11.2012 Разработка на математически методи за проектиране, оценяване и имплементиране на криптографски схеми за защита на информацията (ФНИ 2012-2016), партнираща организация – ДАНС, ръководител проф. дмн Цонка Байчева, бюджет 315 000 лв.
10. Други: Участник в 3 проекта с ФНИ преди 2010 г., 3 образователни проекта с МОН, ръководител на над 10 проекта с фондации и други спонсори за олимпиади по математика.

Проекти 1-7 са в последните 5 години.

#### Публикации

1. On the upper bounds for the kissing numbers, *Serdica Math. J.* 18, 1992, 278-285.

2. Some restrictions on the structure of "very large" spherical codes, Proc. Third Intern. Workshop "Algebraic and Combinatorial Coding Theory", V. Voda, June 1992, 18-21.
3. Nonexistence of certain symmetric spherical codes, Designs, Codes and Cryptography 3, 1993, 69-74.
4. (with S. Dodunekov) Some new bounds on the kissing numbers, Proc. Sixth Joint Swedish-Russian Intern. Workshop on Inform. Theory, Moele, August 1993, Sweden, 389-393.
5. Small improvements of the upper bounds of the kissing numbers in dimensions 19, 21 and 23, Atti Sem. Mat. Fis. Univ. Modena, XLII, 1994, 159-163.
6. On the extremality of the polynomials used for obtaining the best known upper bounds for the kissing numbers, J. Geom. 49, 1994, 67-71.
7. On the classification of the tight spherical designs, Proc. 1994 IEEE Intern. Symposium on Information Theory, Trondheim, Norway, June 27 - July 1, 1994, 105.
8. (with S. Nikova) New lower bounds for some spherical designs, Proc. First French-Israeli Workshop on Algebraic Coding, Paris, July 1993; Springer Lecture Notes in Computer Science 781, 1994 207-216.
9. The tight spherical 4-design on  $S^5$  is unique, Proc. Fourth Intern. Workshop Algebraic and Combinatorial Coding Theory, Novgorod, Russia, Sept. 1994, 52-55.
10. (with P. Kazakov) Nonexistence of certain spherical codes, C. R. Acad. Bulg. Sci. 47, 1994, 37-40.
11. Extremal polynomials for obtaining bounds for spherical codes and designs, Discr. Comput. Geom. 14, 1995, 167-183.
12. Computing distance distributions of spherical designs, Linear Algebra and Its Applications, dedicated to J.J.Seidel, 226/228, 1995, 277-286.
13. (with D. Danev) Classification of the spherical codes attaining the even Levenshtein bounds, Proc. Intern. Workshop on Optimal Codes, Sozopol, May 1995, 21-24.
14. (with I. Landgev) On maximal spherical codes I, Proc. Intern. Symposium AAECC-11, Paris, July 1995; Springer-Verlag Lecture Notes in Computer Science 948, 1995, 158-168.
15. (with P. Kazakov) New upper bounds for some spherical codes, Serdica Math. J. 21, 1995, 231-238.
16. (with D. Danev, S. Dimcheva) On bounds on the minimum distance of spherical codes, Proc. Intern. Workshop on Optimal Codes, Sozopol, May 1995, 25-28.
17. (with S. Nikova) Some characterizations of spherical designs with small cardinalities, Proc. Fifth Intern. Workshop "Algebraic and Combinatorial Coding Theory", Sozopol, Bulgaria, June 1996, 77-80.
18. (with D. Danev, S. Bumova, P. Kazakov) A program for obtaining linear programming bounds for spherical codes, Proc. Fifth Intern. Workshop "Algebraic and Combinatorial Coding Theory", Sozopol, Bulgaria, June 1996, 68-70.
19. (with D. Danev) On linear programming bounds for codes in polynomial metric spaces, Proc. Fifth Intern. Workshop "Algebraic and Combinatorial Coding Theory", Sozopol, Bulgaria, June 1996, 71-76.
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### **Справка за независими цитирания**

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включени са цитирания от работи в Скопус на работи, които не са в Скопус (например статията [60] има 20 независими цитирания от работи в Скопус).

H-index: 9 (общо), 6 (Scopus).