

PUBLICATION LIST

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- (1) *Universal Chord Theorem*, with Ion Ciudin, submitted to AMM (2026)
- (2) *Drainage Time and Shape: Inequalities from Torricelli's Law*, sbmitted to AMM (2025)
- (3) *Lattice equilateral triangles in the half-plane model of Hyperbolic Geometry*, Math. Mag. **98** (2025), pp 110-115
- (4) *A special sequence and primorial numbers* , with Amit Kumar Basistha, *Revue Roumaine de Mathematique Pures et Appliques*, **vol. 70**, 3-4, 235–255 (2025)
- (5) *On the average value of the minimal Hamming multiple*, with Florian Luca and Thomas Merino, *An. Stiint. Univ. Al. I. Cuza Iasi. Tomul LXX*, 2024, pp 217-235
- (6) *Apollonius "circle" in Spherical Geometry*, *International Journal of Geometry*, **9**(2020), No. 1, pp. 75 - 84
- (7) *Ehrhart polynomial for lattice squares, cubes and hypercubes*, *Revue Roumaine de Mathematique Pures et Appliques*, **xx**(1) (2019), pp. 57-80
- (8) *Random triangles in planar regions containing a fixed point*, *Rend. Circ. Mat. Palermo* **68**(2019), Issue 2, pp. 363-383
- (9) *A variation on bisecting the binomial coefficients*, *Discrete Applied Mathematics*, **250**(2018), pp. 276-284
- (10) *Arithmetic Mean-Geometric Mean Inequality under additional assumptions*, Research Group in Mathematical Inequalities and Applications, online preprint collection- 2018
- (11) *Apollonius "circle" in Hyperbolic Geometry*, *Forum Geometricorum*, **18** (2018), pp. 135-140
- (12) *Bisecting binomial coefficients*, with T. Martinsen and P. Stănică, *Discrete Applied Mathematics*, **227**(2017), pp. 70-83
- (13) *Gaussian Integers and Unit Fractions*, with K. Bradford, *Acta Math. Univ. Comenianae*, **LXXXVI** (2017), pp. 127-141
- (14) *New parametrization of $A^2 + B^2 + C^2 = 3D^2$ and Lagrange's four-square theorem*, *An. Științ. Univ. Al. I. Cuza Iași. Mat. (N.S.)*, vol. **62**(3) (2016), pp. 823-833
- (15) *The signum equation for Erdős-Surányi sequences*, with Dorin Andrica, vol. **15A** (2015): Proceedings of Integers 2013: The Erdos Centennial Conference

- (16) *A geometric reduction of the Erdős-Straus conjecture*, with Kyle Bradford, *Advanced Modeling and Optimization*, **17**(1) (2015), pp. 41-54
- (17) *Equilateral triangles in $\mathbb{Z}^4$* , *Vietnam J. Math.* vol. **43**(3) (2015), pp. 525-539
- (18) *On a conjecture on the number of polynomials with coefficients in $[n]$* , with Dorin Andrica, Sneha Chaubey, and Alexandru Zaharescu, *Bull. Math. Soc. Sci. Math. Roumanie*, vol. **58**(106) (2015), pp. 19-31
- (19) *Some unexpected Connections between Analysis and Combinatorics*, with Dorin Andrica, *Mathematics without boundaries: survey in pure mathematics*, Themistocles M. Rassias and Panos Pardalos, Editors, Springer (2014)
- (20) *On polynomials with coefficients in $[n]$* , with Dorin Andrica, *An. St. Univ. Ovidius Constanta*, Vol. **22**(1), 2014, 13-23
- (21) *Primes of the form $\pm a^2 \pm qb^2$* , with Jeff Patterson, *Stud. Univ. Babes-Bolyai Math.* **58** (2013), No. 4, pp. 421-430
- (22) *Estimations of the Rate of Interest for an Annuity Certain*, with R. Stephens, *Journal of Financial and Economic Practice*, **13**(2)(2013), pp. 84-97
- (23) *Lattice Platonic Solids and their Ehrhart polynomial*, *Acta Math. Univ. Comenianae*, **82**(1) (2013), pp. 147-158
- (24) *Ehrhart's polynomial for equilateral triangles in $\mathbb{Z}^3$* , *Australas. J. Combinatorics*, **55** (2013), pp. 189-204
- (25) *Things to do with a broken stick*, with Gabriel Prajitura, *International Journal of Geometry*, vol. **2**(2) (2013), pp. 5 - 30
- (26) *Cubes in $\{0, 1, \dots, n\}^3$* , with Rodrigo Obando, *Integers*, vol. **12A** (2012) (John Selfridge Memorial Issue), Art. A9
- (27) *Regular octahedrons in $\{0, 1, \dots, n\}^3$* , *Fasc. Math.*, **48** (2012), pp. 49-59
- (28) *Moments and the Range of the Derivative*, with Richard Stephens, *Real Analysis Exchange*, **37**(1) (2012), pp. 1-17
- (29) *Half domination arrangements in regular and semi-regular tessellation type graphs*, *Advanced Modeling and Optimization*, **14**(1) (2012), pp. 233-245
- (30) *Regular tetrahedra with integer coordinates of their vertices*, *Acta Math. Univ. Comenianae*, **80**(2) (2011), pp. 161-170
- (31) *On the Erdos-Straus conjecture*, with A. Wilson, *Revue Roumaine de Mathematique Pures et Appliques*, **56**(1) (2011), pp. 21-30
- (32) *Platonic solids in $\mathbb{Z}^3$* , with A. Markov, *J. Number Theory*, **131** (2011), pp. 138-145
- (33) *On positivity of bivariate polynomials*, *Gazeta Matematica (Seria A)*, Anul XXVIII(CVII) **3-4** (2010), pp. 134-136

- (34) *Certain Binomial Sums with recursive coefficients*, with E. Kilic, *Fibonacci Quart.*, **48**(2) (2010), pp. 161-167
- (35) *On independent sets in purely atomic probability spaces with geometric distribution*, with A. Stancu, *Acta Math. Univ. Comenianae*, **79**(1) (2010), pp. 31-38
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- (37) *A characterization of regular tetrahedra in $\mathbb{Z}^3$* , *J. Number Theory*, **129** (2009), pp. 1066-1074
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- (39) *Twin problems on non-periodic functions*, *Crux Mathematicorum with Mathematical Mayhem*, **34**(7) (2008), pp. 424-429
- (40) *A characterization of all equilateral triangles in $\mathbb{Z}^3$* , with Ray Chandler, *Integers*, **8** (2008), Art. A19
- (41) *Minimal Niven numbers*, with F. Luca, P. Stanica and H. Fredricksen, *Acta Arith.*, **132** (2008), pp. 135-159
- (42) *Counting all equilateral triangles in $\{0, 1, 2, \dots, n\}^3$* , *Acta Math. Univ. Comenianae*, **77**(1) (2008), pp. 129-140
- (43) *Remarks on a sequence of minimal Niven numbers*, with F. Luca, P. Stanica and H. Fredricksen, *Proceedings of the International Workshop, SSC (2007) (Sequences, Subsequences and Consequences)* Springer, pp. 162-168
- (44) *A proof of two conjectures related to Erdős-Debrunner inequality*, with P. Stanica and C. L. Frenzen, *J. Inequal. Pure and Appl. Math*, **8**(3) (2007), Art. 68
- (45) *A parametrization of equilateral triangles having integer coordinates*, *Journal of Integer Sequences*, **10** (2007), Art. 07.6.7
- (46) *Heron triangles with two fixed sides*, with F. Luca and P. Stanica, *J. Number Theory*, **126**(1) (2007), pp. 52-67
- (47) *Extreme values for the area of rectangles with vertices on concentric circles*, with P. Stanica, *Elemente der Mathematik*, **62** (2007), pp. 40-43
- (48) *Simultaneous Translational and Multiplicative Tiling and Wavelet Sets in $\mathbb{R}^2$* , with Yang Wang, *Indiana Univ. Math. J.*, **55**(6) (2006), pp. 1935-1949
- (49) *On ring homomorphisms of $C(\mathbb{R})$ whose range consists of smooth functions*, *Gazeta Matematica*, A series, **4**, 2006
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- (52) *Direct paths of wavelets*, with E. Azoff, D. R. Larson and C. Pearcy, Houston J. Math. **29**(3) (2003), pp. 737-756
- (53) *Rank-one perturbations of diagonal operators*, Integral Equations and Operator Theory, **39** (2001), pp. 421-440
- (54) *Wandering sets for a class of Borel isomorphisms of $[0, 1)$* , with E. Azoff, The Journal of Fourier Analysis and Applications, **6** (2000), pp. 623-638
- (55) *On subwavelet sets*, with C. M. Pearcy, Proc. Amer. Math. Soc., **126** (1998), pp. 3549-3552
- (56) *On wavelet sets*, with D. R. Larson and C. M. Pearcy, J. Fourier Anal. and Appl., **4**(6) (1998), pp. 711-721
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- (58) *On the structure of operators and wavelets*, thesis, Texas A&M University, (1997)
- (59) *On power bounded operators*, Proc. Amer. Math. Soc., **125** (1997), pp. 1435-1441
- (60) *Jordan decomposition and factorization for nonnegative operator-valued functions*, Rev. Roumaine Math. Pures Appl., **37** (1992), pp. 691-699.
- (61) *Joint spectral properties for permutable linear transformations*, with F.-H. Vasilescu, J. Reine Angew. Math. **426** (1992), pp. 23-45

Future work/projects

- (1) *Trefoil quadratic forms*, work in progress
- (2) *Various approaches in finding $M_2(n)$* , with R. Obando
- (3) *An attempt to solving Erdos-Strauss conjecture*, with Bilal Ghermoul
- (4) *k -dependence arrangements in graphs associated to Archimedean solids*, with Kimberly Apple
- (5) *Regular lattice tetrahedrons and their Ehrhart polynomial*
- (6) "Problems from the MAA journals", *Mathematics Problems for Undergraduates*, a textbook
- (7) *Differential Equations, lecture notes*, ejionascu.ro/textbooks/diffeqbook.pdf
- (8) *Lecture Notes in Number Theory*, */notes/ntbook.pdf
- (9) *Calculus, Lecture Notes* */notes/calclnotes.pdf
- (10) *Lecture Notes in Discrete Mathematics*, */notes/dmln.pdf
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- (12) *Putnam Training Problems and Solutions* (my homepage)
- (13) *Lecture Notes in Abstract Algebra* (my homepage)

Published Proposed Problems or Solutions

- (1) *Proposed Problem 4782*, [Similar problem to \$A_5\$ on Putnam 2021](#), *Cruze Mathematicorum with Mathematical Mayhem*, **48**(9) (2022)

- (2) *Proposed Problem 1217*, “[Unexpected appearance of the Fibonacci sequence](#)”, *The College Math. J.*, **53**(1) (2022)
- (3) *Solution to Problem 12195*, [Regular Polygons Inscribed in a Cube](#), *Amer. Math. Monthly*, **129**(3) (2022), pages 291-293 (with Yury J. Ionin, Champaign, IL)
- (4) *Solution to Problem 4551*, *Crux Mathematicorum with Mathematical Mayhem*, **47**(1) (2021)
- (5) *Proposed Problem 1201*, *The College Math. J.*, **52**(3) (2021), p. 228
- (6) *Solution to Problem 12097*, [Calkin-Wilf Tree solution](#), *Amer. Math. Monthly*, **127**(10) (2020), pp. 757-759
- (7) *Proposed Problem 1183*, *The College Math. J.*, **51**(4) (2020), p. 306
- (8) *Solution to Problem 1143*, *The College Math. J.*, **51**(1) (2020), pp. 69-70
- (9) *Proposed Problem 4485*, with Jonathan Parker, *Crux Mathematicorum*, **45**(9), November 2019
- (10) *Proposed Problem 1153*, *The College Math. J.*, **50**(3) (2019), p. 225
- (11) *Proposed Problem 1148*, *The College Math. J.*, **50**(2) (2019), p. 143
- (12) *Solution to Problem 1346*, with Christopher Lane, *Pi Mu Epsilon*, **14** (9), Fall 2018, pp. 605-608
- (13) *Proposed Problem 4293*, *Crux Mathematicorum with Mathematical Mayhem*, **43**(10) (2017)
- (14) *Proposed Problem 459*, *Gazeta Matematica, Seria A*, vol. **114**, no. 1-2 (2017), p. 34
- (15) *Proposed Problem 1088*, *The College Math. J.*, **48**(5) (2017), p. 373
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- (17) *Proposed Problem 1099*, with Kimberly Apple, *The College Math. J.*, **48**(2) (2017), p. 139
- (18) *Proposed Problem 11949*, [On the equation \$2\cos\(x+f\(x\)\)-\cos x=1\$](#) , *Amer. Math. Monthly*, **123**(10) (2016), p. 1051
- (19) *Proposed Problem 1088*, *The College Math. J.*, **47**(5) (2016), p. 369
- (20) *Proposed Problem 4002*, with K. Apple, *Crux Mathematicorum with Mathematical Mayhem*, **42**(1) (2016)
- (21) *Proposed Problem 1085*, *The College Math. J.*, **47**(4) (2016), p. 301
- (22) *Solution to Problem 1055*, *The College Math. J.*, **3** (2016), pp. 226-227
- (23) *Proposed Problem 1303 and solution*, with R. Stephens, *Π ME Journal*, (2015) (issue 2), pp. 224-225
- (24) *Proposed Problem 11873*, [Trigonometric Identity](#), *Amer. Math. Monthly*, **122**(10) (2015), p. 1010
- (25) *Solution to Problem 1288*, *Π ME Journal*, **2**(2014), p. 4
- (26) *Proposed Problem 11693*, [Maximum size equilateral triangle in the hypercube](#), *Amer. Math. Monthly*, **120**(2) (2013), p. 174 (Solution appeared in *AMM* **122**(2) (2015), p. 178-181, by Yury J. Ionin- Champaign, IL)

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- (30) *Solution of problem 955*, *The College Math. J.*, **3** (2012), pp. 263-264
- (31) *Solution to Problem 11366*, Amer. Math. Monthly, **117**(3) (2010), pp. 280-281
- (32) *Solution to Problem 1204*, Π ME Journal, (2010) (issue 1), pp. 3-4
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- (34) *Solution of problem 878*, *The College Math. J.*, **3** (2009), p. 218

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