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Citizenship: USA
Date of Birth: 16.10.1978

Languages (Native): English
Languages (Acquired): German and Spanish

Education

- Habilitation — University of Graz — Nov. 2008
- Ph.D. in Mathematics — Caltech — Jun. 2006 (formal award date)
- B.A. summa cum laude — Bates College — May 2001

Academic Positions

- *Visiting Professor and Researcher*
  University of Graz — Oct. 2009 – Present.
- Austrian Science Foundation (FWF) *Lise Meitner Scientist*
  University of Graz — Oct. 2007 – Sep. 2009.
- NSF Math and Physical Sciences *Distinguished Research Fellow*
  Technical University of Catalunya (UPC) — Nov. 2005 – Sep. 2007.
- *Assistant Director* for NSF grant DMS-0097317 funded
  Research Experiences for Undergraduates (REU) program
  University of Idaho — Summer 2001 and 2003.

Recent Research Interests

- Additive Number Theory, Additive Combinatorics, and Additive Group Theory
- Combinatorial Number Theory
- Generalized Ramsey Theory and Extremal Combinatorics
- Zero-Sum Problems
- Applications in Non-unique Factorization Theory, Krull Monoids, Convex Geometry, Projective Geometry, Invariant Theory, ...

Grants

- Amadée Austria–France Cooperative Grant — Oct. 2012 – Sep. 2013.
  (co-authored with C. Elsholtz, A. Geroldinger, A. Plagne, A. Reinhart and W. Schmid)
- FWF Grant M1014-N13 — Oct. 2007 – Sep. 2009.
  (co-authored with A. Geroldinger)
- NSF MPS-DRF Grant DMS-0502193 — Nov. 2005 – Sep. 2007.

Academic Service

- Referee for the *London Mathematical Society*, *Combinatorica*, *Israel J. Math*, *J. Combin. Theory*, *Discrete Mathematics*, *Integers*, *Graphs and Combinatorics*, *Electronic J. Combin.*, *Ars Combinatoria*, *Applied Mathematics E-Notes*, ...
- Reviewer for MathSciNet — Since 2003

Publications: Available at *www.diambri.org/GrynkPublications*

(1) On some Rado numbers for generalized arithmetic progressions.
Discrete Math., 280 (2004), no. 1-3, 39–50.
(2) On four color monochromatic sets with nondecreasing diameter.
Discrete Math., 290 (2005), no. 2-3, 165–171.
(3) On a partition analog of the Cauchy-Davenport Theorem.
Acta Math. Hungar., 107 (2005), no. 1-2, 161–174.
(4) On four colored sets with nondecreasing diameter and the Erdős-Ginzburg-Ziv Theorem.
J. Combin. Theory Ser. A, 100 (2002), no. 1, 44–60.
(5) with A. Bialostocki, P. Dierker and M. Lotspeich. On some developments of the Erdős-Ginzburg-Ziv Theorem II.
Acta Arith., 110 (2003), no. 2, 173–184.
(6) with R. Sabar. Monochromatic and zero-sum sets of nondecreasing modified diameter.
Electron. J. Combin., 13 (2006), no. 1, Research Paper 28, 19 pp.
(7) with A. Schultz. A five color zero-sum generalization.
Graphs and Combinatorics, 22 (2006), no. 3, 351–360.
(8) with A. Bialostocki. On the intersection of two m-sets and the Erdős-Ginzburg-Ziv Theorem.
Ars Combin. 83 (2007), 335–339.
(9) An extension of the Erdős-Ginzburg-Ziv Theorem to hypergraphs.
European J. Combin., 26 (2005), no. 8, 1154–1176.
(10) Quasi-periodic decompositions and the Kemperman Structure Theorem.
European J. Combin., 26 (2005), no. 5, 559–575.
(11) A weighted Erdős-Ginzburg-Ziv Theorem.
Combinatorica, 26 (2006), no. 4, 445–453.
(12) On a conjecture of Hamidoune for subsequence sums.
Integers, 5 (2005), no. 2, A7, 11 pp.
(13) On the number of m-term zero-sum subsequences.
Acta Arith., 121 (2006), no. 3, 275–298.
(14) A step beyond the Kemperman Structure Theorem.
Mathematikia 55 (2009), 67–114.
(15) with O. Ordaz, M. T. Varela, and F. Villarroel. On Erdős-Ginzburg-Ziv inverse theorems.
Acta Arith., 129 (2007), no. 4, 307–318.
(16) with V. Lev, and O. Serra. Connectivity of addition Cayley graphs.
J. Combin. Theory, Ser. B, 99 (2009), 202–217.
(17) with J. Zhuang. Weighted sequences in finite cyclic groups.
Applied Mathematics E-Notes, 9 (2009), 40–46.
(18) with E. Marchan, and O. Ordaz. Representation of finite abelian group elements by subsequence sums.
J. Théor. Nombres Bordeaux 21 (2009), no. 3, 559–587.
(19) with O. Serra. Properties of two dimensional sets with small sumset.
J. Combin. Theory, Ser. A, (2010), no. 2, 164–188.
(20) with W. D. Gao and A. Geroldinger. Inverse zero-sum problems III.
Acta Arithmetica, 141 (2010), 103–152.
(21) On extending Pollard's Theorem for t-representable sums.
Israel J. Math., 177 (2010), no. 1, 413–439,
(22) with A. Geroldinger. On the arithmetic of Krull monoids with finite Davenport constant.
J. Algebra, 321 (2009), 1256–1284.

(23) with A. Geroldinger. On the structure of minimal zero-sum sequences with maximal cross number.
Journal of Combinatorics and Number Theory 1 (2009), no. 2, 109–126.
(24) with V. Lev. 1-saturating sets, caps, and doubling-critical sets in binary spaces.
SIAM J. Discrete Math., 24 (2010), no. 1, 169-190.
(25) with I. Bardaji. Long arithmetic progressions in sets with small sumset.
Integers, 10 (2010), 335–350, (electronic) A28.
(26) with A. Geroldinger and G. J. Schaeffer and W. A. Schmid. On the arithmetic of Krull monoids with infinite cyclic class group.
Journal of Pure and Applied Algebra, 214 (2010), no. 12, 2219–2250.
(27) with A. Geroldinger and W. A. Schmid. Zero-sum problems with congruence conditions.
Acta Math. Hungar., 131 (2011), no. 4, 323-345.
(28) with A. Geroldinger and W. A. Schmid. The catenary degree of Krull monoids I.
J. Théor. Nombres Bordeaux, 23 (2011), no. 1, 137-169.
(29) with E. Marchan and O. Ordaz. A weighted generalization of two theorems of Gao.
Ramanujan J., 28 (2012), no. 3, 323–340.
(30) Note on a conjecture of Graham.
European J. Combin., 32 (2011), no. 8, 1336-1344.
(31) with G. A. Freiman, O. Serra and Y. Stanchescu. Inverse additive problems for Minkowski sumsets I.
Collectanea Mathematica, 63 (2012), no. 3, 261–286.
(32) with G. A. Freiman, O. Serra and Y. Stanchescu. Inverse additive problems for Minkowski sumsets II.
J. Geometric Analysis, to appear.
(33) with S. D. Adhikari and Z. H. Sun. On weighted zero-sum sequences.
Advances in Applied Math., 48 (2012), no. 3, 506-527.
(34) with A. Philipp and V. Ponomarenko. Arithmetic progression weighted subsequence sums.
Israel J. Math., to appear.
(35) with A. Geroldinger. The large Davenport constant I: groups with a cyclic, index 2 subgroup.
J. Pure and Applied Algebra, to appear.
(36) with P. Baginski, A. Geroldinger and A. Philipp. Products of two atoms in Krull monoids and arithmetical characterizations of class groups.
European J. Combin., to appear.

Books

(37) *Structural Additive Theory*, 410 pp.
Submitted. Table of contents at *www.diambri.org/GrynkPublications*.

Teaching Activities

Courses Taught	Course Type	Hours/Week	Location (Year)
Additive Combinatorics	(VO)	3 hr.	U. Graz (2012)
Additive Number Theory	(VO)	3 hr.	U. Graz (2011)
Algebraic Number Theory	(VO+PS)	$4+2$ hr.	U. Graz (2010)
Commutative Algebra	(VO+UE)	$3+1$ hr.	U. Graz (2009)
Combinatorial Number Theory	(SE)	2 hr.	U. Graz (2009)
Additive Number Theory	(VO)	2 hr.	U. Graz (2008)

VO=Lecture, UE=Exercise Course, PS=Advanced Exercise Course, SE=Student Seminar

Society Membership

- American Mathematical Society (AMS)
- Mathematical Association of America (MAA)

Conferences and Workshops

- Joint Meeting of the AMS and MAA, 2013
  (AMS) Special Session: *The large Davenport constant for Non-abelian groups*
- Additive Combinatorics in Paris, July 2012
  Short Invited Lecture: *Sidon sets and the isoperimetric method*
- Wilsonfest, Caltech, March 2012
  Main Speaker: *Freiman homomorphisms*
- Integers Conference, U. West Georgia, October 2011
  Parallel Session: *Freiman homomorphisms*
- Journées Arithmétiques, Vilnius, June 2011
  Parallel Session: *On Freiman's* $3k-4$ *Theorem in groups of prime order*
- ÖMG + DMV Kongress, Graz 2009
  Parallel Session: *On Pollard's Theorem for general abelian groups*
- Journées Arithmétiques, St. Etienne, July 2009.
  Parallel Session: *The catenary degree of Krull monoids.*
- Clay-Fields Conference on Additive Combinatorics, Number Theory, and Harmonic Analysis, Toronto, Apr. 2008.
  Attendee
- DocCourse in Additive Combinatorics, CRM, Barcelona, Feb. 2008.
  Problem Session Course (jointly taught with W. Schmid): *Additive group theory and the theory of non-unique factorizations.*
- Eurocomb 2007, Sevilla, Sep. 2007.
  Parallel Session: *The connectivity of addition Cayley graphs.*
- Joint Meeting of the AMS and MAA, New Orleans, Jan. 2007.
  Parallel Session: *Extending the Freiman* $3k-3$ *Theorem to distinct sets.*
- COMBSTRU, Barcelona, Sep. 2006.
  Attendee
- 2nd Meeting of the Czech and Catalan Mathematical Societies, Barcelona, Sep. 2006.
  Parallel Session: *On two zero-sum conjectures of Gao, Thangadurai and Zhuan.*
- Rencontres Arithmétique et Combinatoire, St. Etienne, France, 2006.
  Parallel Session: *The structure of subsets of an arbitrary abelian group with a small sumset* $|A+B| = |A| + |B|$.

- Workshop and School on Additive Combinatorics, Montreal, Apr. 2006.
  Attendee
- AMS Sectional Meeting, Santa Barbara, 2006.
  Parallel Session: *A weighted version of the Erdős-Ginzburg-Ziv Theorem.*
- CANT 2005, New York.
  Parallel Session: *The Erdős-Ginzburg-Ziv Theorem in hypergraphs.*
- Integers Conference, U. West Georgia, Oct./Nov. 2003.
  Contributed Paper: *On a conjecture of Hamidoune for subsequence sums*
- Mt. Baldy Conference on Applied Algebra and Combinatorics, Claremont, California, 2002.
  Attendee
- Joint Meeting of the AMS and MAA, New Orleans, Jan. 2001.
  Parallel Session: *On a conjecture of Bialostocki, Erdős, and Lefmann.*
- MAA Fall Northeastern Section Meeting, Providence, Rhode Island, 2000.
  Student Session: *On a conjecture of Bialostocki, Erdős, and Lefmann.*

Seminars

- *Finite Additive Theory* (3 parts).
  U. Graz, 2012.
- *Using arithmetic progressions to weight subsequence sums.*
  U. Graz, 2011.
- *Some recent developments in Additive Number Theorey* (4 parts).
  U. Graz, 2010.
- *On a Weighted Generalization of Two Theorems of Gao's* (6 parts).
  Harisch Chandra Research Institute, India.
- *Finite sumset questions using infinite sets.*
  U. Graz, 2009.
- *Graphs in Additive Combinatorics: large minimal* 1*-saturating sets* (2 parts).
  U. Graz, 2009.
- *Extremal examples for the Davenport constant in rank two groups.*
  Technical University of Catalunya (UPC), Barcelona, 2008.
- *Weighted subsequence sums.*
  U. Graz, 2008.
- *Multidimensional sumsets* (2 parts).
  U. Graz, 2008.
- *Bounds for t-representable sums.*
  U. Graz, 2008.
- *Sumset bounds for two-dimensional sets.*
  U. Deleware, 2008.
- *On the multiplicity of zero-sum subsequences.*
  U. Paris VI, 2006.
- *Zero-sum combinatorics.*
  Technical University of Catalunya (UPC), Barcelona, 2005.
- *A vector space analog of Kneser's Theorem.*
  Caltech, 2004.
- *A weighted Erdős-Ginzburg-Ziv Theorem.*
  Caltech, 2003.
- *An Erdős-Ginzburg-Ziv Theorem for hypergraphs.*
  Caltech, 2003.

- *Zero-sums in sequences of sufficient length and a variation of the Erdős-Ginzburg-Ziv Theorem.*
  Caltech, 2002.
- *On sets with nondecreasing modified diameter.*
  Invited visitor for the 2002 REU at the U. Idaho.
- *Additive Number Theory.*
  Caltech, 2001.
- *Zero-sum Generalized Ramsey Theory: a problem of Bialostocki, Erdős, and Lefmann on sets with nondecreasing diameter.*
  Caltech, 2001.

Miscellaneous

- Hand double for the CBS television series *Numb3rs*.