

## **FIDEL R. NEMENZO, D.Sc.**

Professor, Insitute of Mathematics  
University of the Philippines Diliman

**Summary:** Dr Fidel Nemenzo is Professor of Mathematics and Vice Chancellor for Research and Development of the University of the Philippines Diliman (UPD). As VCRD, he provides policy and resource support to research, creative work, extention and technology transfer activities in UPD. He studied in UP Diliman and Sophia University in Tokyo, where he obtained his Master of Science and Doctor of Science degrees. His areas of research are number theory, elliptic curves and coding theory. Among the awards he has received are the Achievement Award in Mathematics from the National Research Council of the Philippines and the UP Diliman *Gawad Chancellor Para sa Pinakamahusay ng Guro*. He was President of both the Southeast Asian Mathematical Society and the Mathematical Society of the Philippines, and has held research and teaching posts in Singapore, Tokyo, Amsterdam, Munich and Phnom Pehn. In 2019, Dr Nemenzo was elected to the Governing Board of the National Research Council of the Philippines and chairs its Mathematics Division.

### **Education**

University of the Philippines Diliman, B.S. Mathematics, 1985  
Sophia University, Tokyo, M.S. Mathematics, 1992  
Sophia University, Tokyo, D.Sc., Mathematics, 1998

### **Appointments (UP)**

2014-present: Vice-Chancellor for Research and Development, UP Diliman  
2017-present: Convenor, Data Science for Public Policy Program, Center for Integrative Development Studies, University of the Philippines  
2016, 2018: OIC Director, Institute for Small Scale Industries  
2009- : Professor, Institute of Mathematics, UPD  
2012-2014: Associate Dean for Academic Affairs, College of Science, UPD  
2011-2012: Deputy-Director for Academic Affairs, Institute of Mathematics, UPD  
2010-2011: Deputy-Director for Resources and Facilities, Institute of Mathematics, UPD  
2006-2011: Coordinator, Science and Society Program, College of Science, UPD  
1998-2009: Associate Professor, Institute of Mathematics, UPD  
1996-1998: Assistant Professor, Institute of Mathematics, UPD  
1992-1996: Instructor, Institute of Mathematics, UPD

### **Professional posts**

Chair, Division II (Mathematical Sciences), National Research Council of the Philippines  
Member, Governing Board, National Research Council of the Philippines  
President, Southeast Asian Mathematical Society, 2010-2012  
President, Mathematical Society of the Philippines, 2004-2010  
Editor-in-Chief, *Matimyas Matematika*, 2010-2014  
Member, Editorial Board, *Matimyas Matematika*, 2014-present  
Member, *Internasyonal na Lupon ng mga Editor ng Daluyan: Journal ng Wikang Filipino*  
Member, Board, Mathematical Society of the Philippines  
Member, Board, Center for Ethnomusicology, UP Diliman  
Member, Editorial Board (for mathematics), *4Open* (multidisciplinary) journal  
Member, Editorial Board, *Philippine Public Policy Journal*

### **Other posts**

2012, 2014: Visiting Professor, Royal University of Phnom Pehn, Cambodia  
2009: Visiting Researcher, Ludwig Maximilians University, Munich, Germany  
2008: Visiting Research Fellow, Korteweg de Vries Institute of Mathematics, Universiteit van Amsterdam, Netherlands



2007: Visiting Research Fellow, Tokyo Metropolitan University, Tokyo, Japan  
 2005, 2006: Visiting Associate Professor, Sophia University, Tokyo, Japan  
 2003: Visiting Researcher, Sophia University, Tokyo, Japan  
 2001: Member, Institute of Mathematical Sciences, National University of Singapore,

### Publications (math-related)

- 1) J. Capco, M. Loquias, S. Manongsong, F. Nemenzo. *Inverse Kinematics of Some General 6R/P Manipulators*. Submitted to Mechanism and Machine Theory (Elsevier), 2019
- 2) R. A. Betty, L. E. Galvez, F. Nemenzo. *Self-orthogonal Codes Over  $F_q + uF_q$* . Submitted to Advances in Mathematics of Communications (American Institute of Mathematics). 2018.
- 3) R.A. Betty, F. Nemenzo and T. L. Vasquez. *Mass formula for self-dual codes over  $F_q + uF_q + u^2F_q$* . Journal of Applied Mathematics and Computing, 2017.
- 4) V.M. Aricheta, R. Celeste and F. Nemenzo. *Hecke operators and zeros of modular forms*. Bull. Malays. Math. Sci. Soc. 39. 2016, 1249-1257.
- 5) F. Nemenzo. *Mathematics and the Liberal Arts*. Phil. Humanities Review 17 (1). 2015. 86-97.
- 6) K. Nagata and F. Nemenzo. *Some properties of the binary Gray code*. IEEE Proceedings, International Conference on Computer Application Technologies, Japan, 2015, 72-75.
- 7) E. Colli, F. Nemenzo, K. Polthier and C. Rousseau. *Mathematics is everywhere*. Proceedings of the 2014 International Congress of Mathematicians, Vol 1. 2014, 819-831.
- 8) K. Nagata, F. Nemenzo and H. Wada. *Mass formula and structure of self-dual codes over  $Z_2$ s*. Designs, Codes and Cryptography 67(3). 2013, 293-402.
- 9) J. Dimabayao and F. Nemenzo. *On Tate-Shafarevich groups of families of elliptic curves*. Notes of Number Theory and Discrete Mathematics 18 (2), 2012, 42-55.
- 10) S. Manongsong, E. Tan, F. Nemenzo and M. Yap. *A new coordinatization of the hexagonal grid and its application to image representation*. IEEE Conference on Industrial Electronics and Applications, Singapore, 2011, 85-89.
- 11) K. Nagata, F. Nemenzo and H. Wada. *The number of self-dual codes over  $Z_p3$* . Designs, Codes and Cryptography 50 (3), 2009, 291-303.
- 12) K. Nagata, F. Nemenzo and H. Wada. *On self-dual codes over  $Z_{16}$* . (book chapter in) Applied Algebra, Algebraic Algorithms and error-Correcting Codes, Lecture Notes in Computer Science 5527, 2009.
- 13) M.C. Amarra and F. Nemenzo. *On  $(1-u)$ -cyclic codes over  $F_p k + uF_p k$* . Applied Mathematics Letters 21, 2008, 1129-1133.
- 14) J.M. Balmaceda, R.A. Betty and F. Nemenzo. *Mass formula for self-dual codes over  $Z_p2$* . Discrete Mathematics 308, 2008, 2984-3002.
- 15) K. Nagata, F. Nemenzo and H. Wada. *A constructive algorithm of self-dual error-correcting codes*. Proceedings of the 11th International Workshop on Algebraic and Combinatorial Coding Theory, 16-22 June 2008, Pamporovo, Bulgaria, 215-220.
- 16) F. Nemenzo. *On a theorem of Scholz on the class number of quadratic fields*. Proc. Japan Acad 80A, 2004, 9-11.
- 17) K. Betsumiya, S. Ling and F. Nemenzo. *Type II codes over  $F_2 m + uF_2 m$* . Discrete Mathematics 275, 2004, 43-65.
- 18) F. Nemenzo. *All congruent numbers less than 40000*. Proc. Japan. Acad. 74A (1), 1998.
- 19) F. Nemenzo. *On the rank of the elliptic curve  $y^2 = x^3 - 2379^2 x$* . Proc. Japan Acad. 72A (9), 1996.
- 20) F. Nemenzo and H. Wada. *An elementary proof of Gauss' genus theorem*. Proc. Japan Acad. 68A (4), 1992.
- 21) F. Nemenzo and H. Wada. *Classification of codes over finite rings*. Proceedings of the Annual Conference of the PCUA (Personal Computers' Users Association of Japan), 10 March 2006, Tokyo, Japan.
- 22) P. Caranay and F. Nemenzo. *A note on Scholz' biquadratic reciprocity law*. Matimyas Matematika 27 (1-3), 2004.
- 23) J. Balmaceda, R. Betty and F. Nemenzo. *On the number of distinct self-dual codes over  $Z_9$* . Matimyas Matematika 26, 2003.
- 24) F. Nemenzo. *A note on the class number of  $Q(\sqrt{pq})$* , Matimyas Matematika 18 (1), 1995.



- 25) F. Nemenzo. *A rational biquadratic reciprocity law*. Proceedings of the 1993 Mathematics Symposium of the National Research Council of the Philippines, 41-47.
- 26) F. Nemenzo. *On the determination of the principal genus of quadratic fields*. Proceedings of the International Workshop and Conference on Number Theory, University of Hongkong, July 1993.
- 27) F. Nemenzo, *Fermat's Last Theorem: A mathematical journey*. Matimyas Matematika 17(2), May 1994.
- 28) F. Nemenzo (with A. Ramirez and J. Caro). *TekKids 2: Introduction to Computers and IT*, TechFactors, Inc, 2005. [textbook for grade school]
- 29) F. Nemenzo, K. Nagata (trans.), *Firipin ni Okeru Kompyutariterashi: sono mezasu tokoro* (Computer Literacy in the Philippines: Where to?) [in Japanese], Pasokon Riterashi magazine, Feb. 1996, pp 27-31.
- 30) F. Nemenzo, *Some Prime Information*, Math Quest, Juniors, Vol 1, No. 1.
- 31) F. Nemenzo, *Hunting for Prime Numbers*, Math Quest, Juniors, Vol 1, No. 1.
- 32) F. Nemenzo, *The Fibonacci Sequence*, Math Quest, Juniors, Vol 1, No. 1.
- 33) F. Nemenzo, *Fibonacci in Nature*, Math Quest, Juniors, Vol 1, No. 1.

### Some awards/recognitions

One UP Professorial Chair, 2019  
 UP Diliman Centennial Faculty Grants  
 NRCP Achievement Award (Mathematics), National Research Council of the Philippines, 2013  
 UP Diliman Gawad Chancellor *para sa Pinakamahusay na Guro*, UPD, 2005  
 Commencement Speaker, Cebu Normal University, March 2014  
 International Mathematical Union grant for senior mathematicians, Seoul, 2014  
 E&R Santos Meritorious Service Award, UP Diliman Mathematics Foundation, March 2014.  
 UP Centennial Faculty Grant, 2013  
 Crisostomo and Cristina Garcia Centennial Professorial Chair in Mathematics, 2008-10  
 International Mathematical Union grant, Hyderabad, 2010  
 International Mathematical Union grant, Madrid, 2006  
 Metro Manila Commission Professorial Chair, 2007  
 PHINMA Professorial Chair, 2005  
 UP International Publication Awards  
 Sophia University STEC (Science and Technology Exchange) Grant, 2006  
 Hitachi Research Fellowship, 2005  
 Institute of Mathematical Sciences (National Institute of Singapore) research fellowship, 2001  
 Japan Society for the Promotion of Science (JSPS) PhD grant  
 Japan Monbukakusho scholarship

### Mentoring

(thesis/dissertation advisor to 2 PhD, 13 M.S. and over 70 B.S. Mathematics students, all from the University of the Philippines)

### **Fidel Nemenzo**

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