Julius Fergy Tiongson-Rabago — *Curriculum Vitæ*[†]

Personal Information

Date & Place of Birth	1991 September 5, Cabanatuan City, Philippines (Nationality: *Filipino*)
Marital Status	Married · three children (sons)
Current Position	JSPS Postdoctoral Fellow
University Address	Japan, Ishikawa-ken, 920-1192 Kanazawa-shi, Kakuma
	Kanazawa University, Intstitute of Science and Engineering
	Faculty of Mathematics and Physics
Contact Informations	jfrabago@gmail.com +81 903 830 4983
Online Informations	ORCID SCOPUS GoogleScholar ResearchGate
Personal Webpage	https://jftrabago.github.io
Research Map	https://researchmap.jp/jftrabago

Education

Oct 2017 – Sep 2020	**Ph.D., Informatics** *Nagoya University*, Nagoya City, Japan Dissertation Title: *Analysis and Numerics of Novel Shape Optimization Methods for the Bernoulli Problem* (Supervisor: Hideyuki Azegami, Ph.D.)
Jan 2015 – Jan 2017	**M.Sc., Mathematics** *University of the Philippines Baguio*, Baguio City, Philippines Thesis Title: *Shape optimization for the Bernoulli free boundary problem via Céa's classical Lagrange method and min-max differentiability of the Lagrangian* (Supervisor: Jerico B. Bacani, Dr.rer.nat.)
Jun 2011 – Jan 2015	**P.M.A.M., Actuarial Science** *University of the Philippines Diliman*, Quezon City, Philippines Research Title: *Modeling actuarial present value under stochastic discount function with jump processes* (Program Advisor: Jose Maria L. Escaner IV, Ph.D.)
Jun 2007 – Oct 2010	**B.Sc., Mathematics** *University of the Philippines Baguio*, Baguio City, Philippines

Research Interests

(*current*)	free boundary problems · free surface problems · geometric inverse problems · moving boundary problems · optimal shape design problems · parameter identification problems · shape optimization methods
(*other topics*)	recurrence sequences and equations · nonlinear difference equations · (delay) differential, functional and polynomial equations · elementary Diophantine equations · circulant matrices

Research, Travel, and Accommodation Grants

2024 November 1 – 2026 October 31	Grants-in-aid for JSPS Fellows, **Japan Society for Promotion of Science KAKENHI Grant Number JP24KF0221**, *research grant*, *Co-Investigator*, Novel hybrid methods for accurate shape reconstruction: advancing theory and computational solutions, JPY 2,400,000
2023 April 1 – 2027 March 31	Grants-in-aid for Early-Career Scientist, **Japan Society for Promotion of Science KAKENHI Grant Number JP23K13012**, *research grant*, *Principal Investigator*, Development of effective and accurate non-conventional solution methods for shape inverse problems: theory and numerics, JPY 3,120,000 (Discontinued as of October 31, 2024, due to the JSPS Postdoctoral Fellowship.)
Jun 2022	**ShapO French ANR**, *accommodation grant*, Shape Optimization, Related Topics and Applications, Bretagne, France
Jul 2016	**CIMPA**, *travel and registration grants*, AMC 2016, Bali, Indonesia
Jun 2016	**OIL/OVPAA** University of the Philippines, *travel grant*, NUMTA 2016, Reggio Calabria, Italy
Jun 2016	**CIMPA**, *travel and accommodation grants*, SEAMS School 2016, Bandung, Indonesia
Sep 2015	**CIMPA**, *travel and accommodation grants*, SEAMS School 2015, Yogyakarta, Indonesia

[†]Last Updated on August 27, 2025

Publications

To appear, accepted, submitted, in preparation, and on-going works

2025 [71] E. Charrat, L. Afraites, and JFTR, *Enhanced shape recovery in advection–diffusion problems via a novel ADMM-based CCBM optimization*, *submitted.* arXiv

[70] M. Machida, H. Notsu, and JFTR, *A shape optimization approach for inverse diffusion problems using a single boundary measurement*, *submitted.* arXiv

Papers in Shape Optimization, its Applications, and Related Topics

2025 [69] JFTR and M. Kimura, *On the well-posedness of a Hele-Shaw-like system resulting from an inverse geometry problem formulated through a shape optimization setting*, ESAIM: Control Optim. Calc. Var., 31, July 2025, Article Number 64, 65 pages. doi arXiv

[68] E. Charrat, L. Afraites, and JFTR, *Numerical solution by shape optimization method to an inverse shape problem in multi-dimensional advection-diffusion problem with space dependent coefficients*, Appl. Math. Optim., 92, Article 13, 44 pages doi arXiv

[67] JFTR, *Localization of tumor through a non-conventional numerical shape optimization technique*, Appl. Numer. Math., 217:135–171 doi arXiv

[66] JFTR, L. Afraites, and H. Notsu, *Detecting immersed obstacle in Stokes fluid flow using coupled complex boundary method*, SIAM J. Control Optim., 63(2):822–851 doi arXiv

[65] E. Charrat, L. Afraites, and JFTR, *Shape reconstruction for advection-diffusion problems by shape optimization method: the case of constant velocity*, Discrete Contin. Dyn. Syst. - S, 2025, 18(1):296–320 doi

[64] L. Afraites and JFTR, *Shape optimization methods for detecting an unknown boundary with the Robin condition by a single measurement*, Discrete Contin. Dyn. Syst. - S, 2025, 18(1):43–76 doi

2024 [63] JFTR, L. Afraites, A. Hadri, A. S. Hendy, and M. A. Zaky, *A robust alternating direction method of multipliers numerical scheme in a shape optimization setting for solving geometric inverse problems*, Comput. Math. Appl., 175:19–32 doi arXiv

[62] JFTR and L. Afraites, *Boundary shape reconstruction with Robin condition: existence result, stability analysis, and inversion via multiple measurements*, Comput. Appl. Math., 43, Article 270, 37 pages doi arXiv

[61] Y. Sunayama, JFTR, and M. Kimura *Comoving mesh method for multi-dimensional moving boundary problems: mean-curvature flow and Stefan problems*, Math. Comput. Simul., 221:589–605 doi

[60] JFTR and H. Notsu, *Numerical solution to a free boundary problem for the Stokes equation using the coupled complex boundary method in shape optimization setting*, Appl. Math. Optim., 89, Article 2, 56 pages doi

2023 [59] JFTR, *Numerical solution to the exterior Bernoulli problem using the Dirichlet-Robin energy gap cost functional approach in two and three dimensions*, Numer. Algorithms, 94:175–227 doi

2022 [58] JFTR, *On the new coupled complex boundary method in shape optimization framework for solving stationary free boundary problems*, Math. Control Relat. Fields, 13(4):1362–1398 doi

[57] Y. Sunayama, M. Kimura, and JFTR, *Comoving mesh method for certain classes of moving boundary problems* Japan J. Indust. Appl. Math., 39(3):973–1001 doi

2020 [56] JFTR and H. Azegami, *A second-order shape optimization algorithm for solving the exterior Bernoulli free boundary problem using a new boundary cost functional*, Comput. Optim. Appl., 77(1):251–305 doi

2019 [55] JFTR and H. Azegami, *A new energy-gap cost functional approach for the exterior Bernoulli free boundary problem*, Evol. Equ. Control Theory, 8(4):785–824

[54] JFTR and H. Azegami, *An improved shape optimization formulation of the Bernoulli problem by tracking the Neumann data*, J. Engrg. Math., 117(1):1–29

[53] JFTR and H. Azegami, *Shape optimization approach to defect-shape identification with convective boundary condition via partial boundary measurement*, Japan J. Indust. Appl. Math., 36(1):131–176

2018 [52] JFTR and J. B. Bacani, *Shape optimization approach for solving the Bernoulli problem by tracking the Neumann data: a Lagrangian formulation*, Commun. Pur. Appl. Anal., 17(6):2683–2702

2017 [51] JFTR and J. B. Bacani, *Shape optimization approach to the Bernoulli problem: a Lagrangian formulation*, IAENG Int. J. Appl. Math., 47(4):417–424

2015 [50] J. B. Bacani and JFTR, *On the second-order shape derivative of the Kohn-Vogelius objective functional using the velocity method*, Int. J. Differ. Equ., 2015 Art. ID 954836, 10pp

Papers on Recurrence Sequences and Equations

2025 [49] J. P. Ascaño, E. Gueco, and JFTR, *Convergences of the bi-periodic Horadam sequences and the bi-periodic Lucas-Horadam matrix*, Commun. Korean Math. Soc., 40(2):243–270

2018 [48] P. J. Larcombe, JFTR and E. J. Fennessey, *On two derivative sequences from scaled geometric mean terms*, Pales. J. Math., 7(2):397–405

2016 [47] P. J. Larcombe and JFTR, *On Jacobsthal, Horadam and geometric mean sequences*, Bull. Inst. Combin. Appl., 76:117–126

2015 [46] J. B. Bacani and JFTR, *On generalized Fibonacci numbers*, Appl. Math. Sci. (Ruse), 9(73):3611–3622

[45] J. B. Bacani and JFTR, *On linear recursive sequences with coefficients in arithmetic-geometric progressions*, Appl. Math. Sci. (Ruse), 9(52):2595–2607

[44] JFTR, *More new properties of modified Jacobsthal and Jacobsthal-Lucas numbers*, Notes Number Theory Discrete Math., 21(2):43–54

[43] JFTR, *Periodic sequences in generalized arithmetic and geometric alternate progressions*, Pales. J. Math., 4(1):164–169

[42] JFTR, *On sequence of numbers in generalized arithmetic and geometric progressions*, Pales. J. Math., 4(1):170–176

2014 [41] JFTR, *On second-order linear recurrent homogeneous differential equations with period k*, Hacet. J. Math. Stat., 43(6):923–933

[40] JFTR, *On some Smarandache determinant sequences*, Pales. J. Math., 3(2):231–234

2013 [39] JFTR, *A note on modified Jacobsthal and Jacobsthal-Lucas numbers*, Notes Number Theory Discrete Math., 19(3):15–20

[38] JFTR, *Circulant determinant sequences with binomial coefficients*, Scientia Magna, 9(1):33–38

2012 [37] JFTR, *Arithmetic-geometric alternate sequence*, Scientia Magna, 8(2):80–82

Papers on Nonlinear Difference Equations

2019 [36] J. B. Bacani and JFTR, *Behavior of a two-dimensional competitive system of non-linear difference equations of higher-order*, Int. J. Dyn. Syst. Differ. Equ. 9(1):14–43

2018 [35] J. B. Bacani and JFTR, *An analytical approach in solving a system of nonlinear difference equations*, National Research Council of the Philippines Research Journal 17(3):37–51

[34] JFTR, *On an open question concerning product-type difference equations*, Iran. J. Sci. Technol. Trans. Sci., 42:1499–1503

[33] Y. Halim and JFTR, *On the solutions of a second-order difference equation in terms of generalized Padovan sequences*, Math. Slovaca, 68(3):625–638

[32] JFTR, *On the closed-form solution of a nonlinear difference equation and another proof to Sroysang's conjecture*, Iran. J. Math. Sci. Inform., 13(1):139-151

[31] N. Haddad, N. Touafek and JFTR *Well-defined solutions of a system of difference equations*, J. Appl. Math. Comput., 56(1-2):439–458

2017 [30] J. B. Bacani and JFTR, *On two nonlinear difference equations*, Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal., 24(6):375–394

[29] JFTR and Y. Halim, *Supplement to the paper of Halim, Touafek and Elsayed: Part II*, Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal., 24(5): 333–345

[28] JFTR, *Forbidden set of the rational difference equation* $x_{n+1} = x_n x_{n-k}/(ax_{n-k+1} + x_n x_{n-k+1} x_{n-k})$, Bul. Acad. Ştiinţe Repub. Mold. Mat., 83(1):29–38

[27] JFTR and Y. Halim, *Supplement to the paper of Halim, Touafek and Elsayed: Part I*, Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal., 24(2):121-131

[26] JFTR, *Effective methods on determining the periodicity and form of solutions of some systems of nonlinear difference equations*, Int. J. Dyn. Syst. Differ. Equ., 7(2):112–135

[25] N. Haddad, N. Touafek and JFTR, *Solution form of a higher order system of difference equation and dynamical behavior of its special case*, Math. Meth. Appl. Sci., 40(10):3599–3607

Papers on Polynomial, Functional and (Delay) Differential Equations

2018 [24] JFTR and J. A. Collera, *Hopf bifurcation in a delayed intraguild predation model*, Southeast Asian Bull. Math., 42(5):691–709

[23] J. B. Bacani and JFTR, *Class of of admissible perturbations of special expressions involving completely monotonic functions*, Ital. J. Pure Appl. Math., 40:410–423

[22] J. S. Simon and JFTR *Optimal Control for a Predator-Prey Model with Disease in the Prey Population*, Malaysian J. Math. Sci, 12(2):269–285

2017 [21] JFTR, *Solving higher-order* p*-adic polynomial equations via Newton-Raphson method*, Malaysian J. Math. Sci., 11(1):41–51

2016 [20] JFTR, *Olver's method for solving* p*-adic polynomial equations*, Italian J. Pure Appl. Math., 36:739–748

[19] JFTR, *On second-order linear recurrent functions with period* k *and proofs to two conjectures of Sroysang*, Hacet. J. Math. Stat., 45(2):429–446

[18] JFTR, *Halley's method for finding roots of* p*-adic polynomial equations*, Int. J. Math. Anal. (Ruse), 10(10):493–502

2015 [17] J. B. Bacani and JFTR, *On zeros of some family of polynomials and its applications to integer sequences*, Glob. J. Pure Appl. Math., 11(5):3229–3239

2014 [16] JFTR, *On second-order linear recurrent homogeneous differential equations with period* k, Hacet. J. Math. Stat., 43(6):923–933

Papers on Elementary Diophantine Equations

2018 [15] JFTR, *On the Diophantine equation* $4^x - p^y = 3z^2$ *where* p *is a prime*, Thai. J. Math., 16(3):643–650

2016 [14] JFTR, *On the Diophantine equation* $2^x + 17^y = z^2$, J. Indones. Math. Soc., 22(2)175–178

2015 [13] J. B. Bacani and JFTR, *The complete set of solutions of the Diophantine equation* $p^x+q^y = z^2$ *for twin primes* p *and* q, Int. J. Pure. Appl. Math., 104(4):517–521

[12] J. P. Ascaño and JFTR, *On the positive integer solutions of the Diophantine equation* $\frac{1}{p} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ *where* p *is an odd prime*, J. Algebra and Number Theory Academia, 5(2):47–61

2014 [11] J. P. Ascaño and JFTR, *Short remark on the Diophantine equation* $\frac{1}{2^n} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z}$, J. Algebra and Number Theory Academia, 4(4):107–116

[10] J. B. Bacani and JFTR, *On the Diophantine equation* $3^x + 5^y + 7^z = w^2$, Konuralp J. Math., 2(2):64–69

2013 [9] JFTR, *A note on an open problem of B. Sroysang*, Sci. Tech. RMUTT J., 3(1):41–43

[8] JFTR and R. P. Tagle, *On the area and volume of a certain regular solid and the Diophantine equation* $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = \frac{1}{2}$, Notes Number Theory Discrete Math., 19(3):28–32

Papers on Circulant Matrices

2012 [7] JFTR, *A note on spectral norms of circulant matrices with binomial coefficients*, Int. J. Math. Sci. Comp., 2(2):21–23

Papers in Conference Proceedings

2025 [6] M. Essahraoui, E. Cherrat, L. Afraites, and JFTR, *Simultaneous recovery of corroded boundaries and admittance using the Kohn-Vogelius method*, "Computational Methods for Inverse Problems and Applications", ICMDS 2024, Khouribga, Morocco, October 21–22, 2024. in *Springer Proc. Math. Stat., vol. 498, Springer, Cham, 2025*, pp. 73–89.

2020 [5] J. B. Bacani and JFTR, *Techniques on solving systems of nonlinear difference equations*, "Progress on Difference Equations and Discrete Dynamical Systems" in *Proceedings of The International Conference on Difference Equations and Applications (ICDEA 2019)*, pp. 165–200.

2017 [4] JFTR, *An intriguing application of telescoping sums*, in *Proceedings of The Asian Mathematical Conference 2016 (AMC 2016)*, J. Phys.: Conf. Ser., 893:012005 9pp.

2016 [3] JFTR and J. B. Bacani, *Steffensen's analogue for approximating roots of* p*-adic polynomial equations*, in *Proceedings of the 2nd International Conference "Numerical Computations: Theory and Algorithms" (NUMTA 2016)*, AIP Conf. Proc., 1776:090038 4pp.

[2] JFTR, *On* k*-Fibonacci numbers with applications to continued fractions*, in *Proceedings of the 2015 International Conference on Mathematics, its Applications, and Mathematics Education (ICMAME 2015)*, J. Phys.:Conf. Ser., 693:012005 7pp.

2014 [1] JFTR, *Some new properties of modified Jacobsthal and Jacobsthal-Lucas numbers*, in *Proceedings of the 3rd International Conference of Mathematical Sciences (ICMS3)* AIP Conf. Proc. 1602:805–818

Miscellaneous

Awards

Oct 2017 – Sep 2020 **Japanese Government** (Monbukagakusho: **MEXT**) **Scholarship**, Doctoral Degree Program

Oct 2016 – Sep 2017 **Japanese Government** (Monbukagakusho: **MEXT**) **Scholarship**, Research Student Program

Jan 2015 – Jan 2016 Support for Graduate Students, University of the Philippines Baguio, Masters Degree Program

2018 International Publication Award (**IPA**), Office of the Vice President for Academic Affairs (OVPAA), University of the Philippines, *awarded on January and April (twice)*

2017 International Publication Award (**IPA**), Office of the Vice President for Academic Affairs (OVPAA), University of the Philippines, *awarded on May, June, July and September*

2016 International Publication Award (**IPA**), Office of the Vice President for Academic Affairs (OVPAA), University of the Philippines, *awarded on May (twice), October (twice) and December*

2015 International Publication Award (**IPA**), Office of the Vice President for Academic Affairs (OVPAA), University of the Philippines, *awarded on January, April (twice), November (twice) and December*

2013 International Publication Award (**IPA**), Office of the Vice President for Academic Affairs (OVPAA), Central Luzon State University

Meetings Organized †*Lead Organizer*

July 2025 **Modelling and Analysis in Differential Equations and Data Science, in conjunction with the KU-UP Seminar**, Natural Science and Technology Hall 5, Math Building, 4th floor, Colloqium Room, Kanazawa University, Japan, (Co-organizer; with G. Angeles, M. Kimura, H. Notsu, and J. S. Simon)

July 2025 †Minisymposium on "Recent Advances in PDE-Constrained Optimization and Optimal Controls" (Co-organizer; with H. Fujiwara and W. Gong). **The 18th East Asia Section of Society for Industrial and Applied Mathematics Annual Conference (EASIAM 2025)**, De La Salle University, Manila, Philippines

July 2025 **The 18th East Asia Section of Society for Industrial and Applied Mathematics Annual Conference (EASIAM 2025)**, De La Salle University, Manila, Philippines, (Co-Chair/Organizer; with Angelyn Lao)

March 2025 †**Kanazawa Analysis Seminar, No. 125** (Organizer; host) Natural Science and Technology Hall 5, 2nd floor, Room 209A, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan

March 2025 **Workshop on Modeling and Numerical Analysis of Nonlinear Phenomena 2025 and Continuum Mechanics Focusing on Singularities 2025**, Shiinoki Cultural Complex, Kanazawa, Japan, (Co-organizer; with M. Kimura, H. Notsu, K. Sakakibara, T. G. de Jong, and Y. Nakamura)

June 2024 †Minisymposium on "Recent Advances in Numerical Shape Optimization Methods: From Theory to Practice," **The 17th SIAM East Asian Section Conference**, University of Macau, Macao SAR, China, (Co-organizer; with W. Gong and S. Zhu)

May 2024 †**Differential Equations for Data Science, No. 21** (Organizer; host)

Apr 2024 †**Differential Equations for Data Science, No. 20** (Organizer; host)

Feb 2024 **DEDS 2024** International Conference: Differential Equations for Data Science 2024 meeting held online via Zoom, (Co-organizer; with H. Chiba, T. de Jong, Y. Giga, L. Grigoryeva, B. Hamzi, M. Kimura, H. Kokubu, K. Nakajima, H. Notsu (Chair), and J.-P. Ortega)

Feb 2024 †**Advancements in Applied Mathematics:** A Virtual Workshop for Graduate Students in Applied Mathematics, meeting held online via Zoom, (Co-organizer; with J. Bacani, M. Kimura, S. M. Manongsong, R. Mendoza, H. Notsu, G. Peralta, and J. S. Simon)

Jan 2024 **Kanazawa Analysis Seminar, No. 114**, Natural Science and Technology Hall 5, 2nd floor, Room 209A, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan

Dec 2023 **CoMFoS23**: Mathematical Aspects of Continuum Mechanics 2023, meeting will be held online via Zoom, (Co-organizer; with T. de Jong, M. Kimura, M. Machida, and H. Notsu)

Nov 2023 †**Kanazawa University and University of the Philippines Baguio**: Joint Seminar in Mathematics, *"Study of Graphs,"* meeting held online via Zoom, (Co-organizer)

Oct 2023 †**Kanazawa University and University of the Philippines Diliman**: Joint Seminar on Numerical Analysis and Scientific Computing, meeting held online via Zoom, (Co-organizer)

Sep 2023 †**Differential Equations for Data Science, No. 13** (Organizer; host)

Sep 2023 Minisymposium on "Shape Optimization and Inverse Problems," **Applied Inverse Problems 2023**, University of Göttingen, Göttingen, Germany, (Co-organizer; with L. Afraites and A. Laurain)

Jul 2023 In-House Seminar on **Advances in Applied Analysis and Computational Science**, Room 209, Building C4, Faculty of Mathematics and Physics Institute of Science and Engineering, Kanazawa University, Kakuma Campus, (Co-organizer; with M. Kimura and H. Notsu)

Jan 2023 Workshop on **Applied Mathematics and Scientific Computing**, Satellite Plaza, Kanazawa University (on site), Kanazawa, Japan, (Co-organizer; with M. Kimura and H. Notsu)

Dec 2022 **CoMFoS22**: Mathematical Aspects of Continuum Mechanics 2022, meeting held online via Zoom, (Co-organizer; with M. Kimura and H. Notsu)

Aug 2022 †**Kanazawa University and University of the Philippines Baguio**: Joint Seminar in Mathematics, *"Algebra and Number Theory,"* meeting held online via Zoom, (Co-organizer)

Feb 2022 †**Kanazawa University and University of the Philippines Baguio**: Joint Seminar in Mathematics, meeting held online via Zoom

Workshops and Seminars

Dec 2022 **International Workshop on Multiphase Flows: Analysis, Modelling and Numerics**, Waseda University (on site), Waseda, Japan

June 2022 **Shape Optimization, Related Topics and Applications**, Roscoff Biological center (on site), Bretagne, France

Feb 2022 **Free Boundary Problems and Related Evolution Equations**, Erwin Schrödinger Institute (virtual via Zoom), Vienna, Austria

Jan 2021 **Czech-Japanese Seminar in Applied Mathematics**, Prague, Czech and Tokyo, Japan (virtual via MS Teams)

July 2016 **Mathematics of Shapes and Applications** *"Summer School on Mathematics of Shapes,"* National University of Singapore, Singapore

June 2016 **The South East Asian Mathematical Society School 2016** *"Mathematical and Numerical Modeling for Wave Dynamics,"* Institut Teknologi Bandung, Bandung, Indonesia

Sep 2015 **The South East Asian Mathematical Society School 2015** *"Modeling and Simulation for the Environmental Phenomena,"* Sanata Dharma University, Yogyakarta, Indonesia

Oral Presentations †*invited* **paper presented by co-author*

Conference and Workshop Talks

March 2025 †**Localization of tumor through a non-conventional numerical shape optimization technique**, Workshop on Modeling and Numerical Analysis of Nonlinear Phenomena 2025 and Continuum Mechanics Focusing on Singularities 2025, Shiinoki Cultural Complex, Kanazawa, Japan.

December 2024 †**Obstacle detection in stokes fluid flow using a novel shape optimization approach**, Russia-Japan-India Workshop on *Mathematical analysis of fracture phenomena for elastic structures and its applications*, online meeting.

Decemeber 2024 †**A non-conventional reconstruction approach for parameter identification in inverse optical tomography with single boundary measurement**, Inverse Days 2024 , Lapland Hotel Oulu, Oulu, Finland

October 2024 †**Moving meshes: applications to numerical shape optimization methods and moving boundary problems**, RIMS joint research on the *Development of Numerical Analysis that Contributes to Computational Science*, Research Institute for Mathematical Sciences, Kyoto University, Kyoto, Japan

September 2024 †**Non-conventional shape optimization techniques for shape identification problems**, *Workshop for Young Scholars: Control and Inverse Problems on Waves, Oscillations and Flows - Mathematical Analysis and Computational Methods* -, Kyoto University, Kyoto, Japan

May 2022 **On a numerical shape optimization approach to the exterior Bernoulli problem via the coupled complex boundary method**, *Workshop on Scientific Computing 2022*, Departments of Software Engineering and Mathematics, FNSPE CTU in Prague, Czech Republic, Děčín, Czech Rep. + Online (via MS Teams)

Sep 2019 †**Shape optimization methods for free boundary problems**, *Theoretical and Numerical Research on Iterative Methods for Free Boundary Problems*, *Workshop on Scientific Computing 2022*, RIMS, Kyoto University, Kyoto, Japan

Minisymposium Talks

Sep 2024 †**Numerical shape optimization method for parameter identification problems in diffuse optimal tomography with a non-convex boundary interface**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2024 Annual Meeting*, Kyoto University, Kyoto, Japan (with H. Notsu)

June 2024 **A non-conventional shape optimization method for shape identification problems** , Minisymposium on "Recent Advances in Numerical Shape Optimization Methods: From Theory to Practice," *The 17th SIAM East Asian Section Conference*, University of Macau, Macao SAR, China (with H. Notsu)

Mar 2024 †**Obstacle detection in Stokes fluid flow using a novel shape optimization approach**, Minisymposium on "Interface motion in complex systems," *ALGORITMY 2024: Central-European Conference on Scientific Computing*, High Tatra Mountains, Slovakia (with H. Notsu)

Sep 2023 **Non-conventional shape optimization methods for solving shape inverse problems**, Minisymposium on "Shape Optimization and Inverse Problems," *Applied Inverse Problems 2023* (AIP 2023), University of Göttingen, Göttingen, Germany (with L. Afraites and A. Hadri)

Aug 2023 **Numerical solution to a free boundary problem for the Stokes equation using the coupled complex boundary method in shape optimization setting**, Minisymposium on "Interface motion and related topics," *10th International Congress on Industrial and Applied Mathematics* (ICIAM 2023), Waseda University, Tokyo, Japan (with H. Notsu)

Aug 2021 **A second-order shape optimization algorithm for solving the exterior Bernoulli free boundary problem using a new boundary cost functional**, Minisymposium on "Novel results in optimization and inverse problems," *IFIP TC7 Conference on System Modeling and Optimization*, Quito, Ecuador, via Zoom (with H. Azegami)

Dec 2019 **On a Shape Optimization Approach to the Quadrature Surface Free Boundary Problem**, Minisymposium on "Optimization Methods and Applications," *The 7th Asia-Pacific Congress on Computational Mechanics* (APCOM 2019), TICC, Taipei, Taiwan (with H. Azegami)

Colloquium Talks

Apr 2016 †**Effective Methods for Solving Closed-Form Solutions of Some Solvable Systems of Rational Difference Equations**, *Department of Mathematics and Computer Science Colloquium 2016*, University of the Philippines Baguio, Baguio City, Benguet, Philippines

Seminar Talks

July 2025 †**Inverse geometry via shape optimization: numerical solution and well-posedness from a moving boundary framework** , *Minisymposium on Recent Advances in PDE-constrained Optimizations (organized by W. Gong, S. Zhu, and Z. Zhou)*, The Third HKSIAM Biennial Conference, The Chinese University of Hong Kong, Hong Kong, July 7 - 11, 2025

July 2025 †**Introduction to PDEs, FEMS, and FreeFEM++**, *A Satellite Meeting at De La Salle University*, *The 18th SIAM East Asian Section Conference*, De La Salle University, Manila, Philippines, June 30 - July 4, 2025

June 2025 †**Shape optimization for inverse geometry: numerical methods and well-posedness in a moving boundary setting**, *Shape Seminar*, Tohoku University, Sendai, Miyagi, Japan

May 2025 †**Shape optimization for improved diagnosis: tumor localization and burn depth assessment**, *Mathematical Society of the Philippines - CAR, Regions 1 and 2 Chapter: Mathematics Webinar Series*, University of the Philippines Baguio, Baguio City, Philippines, via Zoom

Aug 2024 †**Exploring Boundaries: Shape Optimization and Studying in Japan**, *Global Emerging Scholar Lecture Series*, Department of Mathematics and Physics, Central Luzon State University, Muñoz City, Nueva Ecija, Philippines

Oct 2023 †**On solving some exponential Diophantine equations of the form** $a^x + b^y = c^2$, *Invited Talks in Mathematics*, Department of Mathematics and Physics, Central Luzon State University, Muñoz City, Nueva Ecija, Philippines, via Zoom

Oct 2023 †**Elementary approaches to solving special cases of the Egyptian fraction problem**, *Invited Talks in Mathematics*, Department of Mathematics and Physics, Central Luzon State University, Muñoz City, Nueva Ecija, Philippines, via Zoom

Mar 2023 †**Elementary approaches for some elementary Diophantine equations**, *Invited Talks in Mathematics*, Department of Mathematics and Physics, Central Luzon State University, Muñoz City, Nueva Ecija, Philippines, via Zoom

Feb 2022 **Numerical methods for the Bernoulli free boundary problem and related topics**, *Kanazawa University - University of the Philippines Baguio Joint Seminar in Mathematics*, Kanazawa University, Kanazawa, Japan and University of the Philippines Baguio, Baguio City, Philippines, via Zoom

Mar 2021 †**Solving Exponential Diophantine Equations via Elementary Methods**, *Research Group Discussion in Number Theory*, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Philippines, via Zoom

Feb 2021 †**Methods of shape optimization in free boundary problems**, *Breakthroughs in Mathematics*, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Philippines, via Zoom

Nov 2020 †**Methods of shape optimization in free boundary problems**, *Kanazawa Analysis Seminar*, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan

Contributed Talks

Jul 2025 **Inverse geometric reconstruction of subdermal burn region from thermal data** , Minisymposium on"Recent Advances in PDE-Constrained Optimization and Optimal Controls" (organized by H. Fujiwara, W. Gong, and J. F. T. Rabago), *The 18th SIAM East Asian Section Conference*, De La Salle University, Manila, Philippines, June 30 - July 4, 2025

Mar 2024 **Non-conventional approximation procedures for parameter identification problems**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2024 Spring Meeting*, Nagaoka University of Technology, Nagaoka City, Niigata, Japan (with H. Notsu)

Mar 2024 **On the application of alternating direction of method of multipliers to shape identification problems**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2024 Spring Meeting*, Nagaoka University of Technology, Nagaoka City, Niigata, Japan (with L. Afraites, A. Hadri, A. S. Hendy, and M. A. Zaky)

Dec 2023 **On the coupled complex boundary method for obstacle shape recovery in Stokes fluid flow**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *25th Research Meeting of the Mathematical Design Research Group*, Kagawa University Saiwaicho Campus, Takamatsu City, Kagawa, Japan) (with H. Notsu and L. Afraites)

Dec 2023 **Detecting immersed obstacle in Stokes fluid using coupled complex boundary method**, *2023 Joint Meeting on Applied Mathematics*, Organized by the Mathematical Society of Japan, Faculty of Advanced Science and Technology, Ryukoku University, Seta Campus, Otsu, Shiga, Japan (with H. Notsu and L. Afraites)

Mar 2023 **New numerical scheme and strategy to effectively solve boundary inverse problem for the Laplace equation**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2023 Spring Meeting*, Okayama University of Science, Okayama, Japan (with L. Afraites and A. Hadri)

Dec 2022 †**An ADMM numerical approach in shape optimization setting for geometric inverse problems**, CoMFoS22: Mathematical Aspects of Continuum Mechanics 2022, via Zoom, hosted by Kanazawa University, Kanazawa, Japan

May 2022 **Comoving Mesh Method: a Finite Element Scheme for Solving Classes of Free and Moving Boundary**, *2022 Mathematical Society of the Philippines* (MSP) *Annual Convention*, via Zoom, hosted by University of the Philippines Los Baños and De La Salle University, Philippines

Sep 2021 *__Quasi-stationary Stefan-type scheme for shape identification problems__, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2021 Annual Meeting*, Shibaura Institute of Technology, Koto City, Tokyo (with M. Kimura)

Jan 2021 *__Comoving mesh method for Hele-Shaw moving boundary problem__, *Czech-Japanese Seminar in Applied Mathematics* (CJS 2021), *Online Conference*, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague (with Y. Sunayama and M. Kimura)

Nov 2020 **A Second-Order Shape Optimization Algorithm for Solving the Exterior Bernoulli Free Boundary Problem Using a New Boundary Cost Functional**, *Asian Congress of Structural and Multidisciplinary Optimization 2020* (ACSMO 2020), *Online Conference*, Seoul, South Korea (with H. Azegami)

Mar 2020 *__On the existence of a solution to a shape optimization problem__, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2020 Spring Meeting*, Chuo University Korakuen Campus, Bunkyo City, Tokyo (with H. Azegami and M. Aino)

Sep 2019 *__On a system of difference equations of second order solved in a closed from__, *Austrian Mathematical Society* (ÖMG) *Conference 2019*, University of Applied Sciences Vorarlberg, Dornbirn, Austria (with Y. Halim)

Jul 2019 **A Newton Method in Sobolev Space for Solving Free Boundary Problems**, *9th International Congress on Industrial and Applied Mathematics* (ICIAM 2019), Campus de Blasco Ibáñez, Universitat de Valéncia, Valéncia, Spain (with H. Azegami)

Jun 2019 *__New techniques for solving systems of nonlinear difference equations__, *The 25th International Conference on Difference Equations and Applications* (ICDEA 2019), University College London, London, United Kingdom (with J. B. Bacani)

May 2019 **On the Ill-posedness and Regularization of the Shape Optimization Formulation Concerning a Geometry Identification Problem**, *World Congress of Structural and Multidisciplinary Optimization* (WCSMO13), CNCC, Beijing, China (with H. Azegami)

Mar 2019 **A New Energy-Gap Cost Functional Approach for the Exterior Bernoulli Free Boundary Problem**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2019 Spring Meeting*, Tsukuba University, Ibaraki, Japan (with H. Azegami)

Nov 2018 **A Novel Shape Optimization Formulation of the Exterior Bernoulli Free Boundary Problem**, *The Computational Techniques and Applications Conference* (CTAC) *2018*, Newcastle City Hall, Newcastle, NSW, Australia (with H. Azegami)

Nov 2018 **An Efficient Second-Order Method for the Numerical Resolution of the Exterior Bernoulli Problem via Partial Gradient**, *The 6th Asian Conference on Nonlinear Analysis and Optimization* (NAO-Asia 2018), Okinawa Institute of Science and Technology Graduate University, Onna, Okinawa, Japan (with H. Azegami)

Sep 2018 **An Improved Shape Optimization Formulation of the Bernoulli Problem by Tracking the Neumann Data**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2018 Annual Meeting*, Nagoya University, Nagoya, Aichi, Japan (with H. Azegami)

Aug 2018 *__Shape Optimization Approach to the Bernoulli Problem: A Lagrangian Formulation__, *2018 International Congress of Mathematicians* (ICM 2018), Rio de Janeiro, Brazil (with J. B. Bacani)

Jul 2018 *__On the Solutions of a Second-Order Difference Equation in Terms of Generalized Padovan Sequences__, *Veszprém Conference on Differential and Difference Equations and Applications* (VCDDEA 2018), University of Pannonia, Veszpeém, Hungary (with Y. Halim)

May 2018 *__On the Diophantine Equation $3^x + 5^y + 7^z = w^2$__, *2018 Mathematical Society of the Philippines* (MSP) *Annual Convention*, Clark Freeport Zone, Pampanga, Philippines (with J. B. Bacani)

Mar 2018 **On the shape Hessian of the tracking Dirichlet data cost functional associated with a cavity identification problem**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *2018 Spring Meeting*, Osaka University, Osaka, Japan (with H. Azegami)

Feb 2018 **Shape Optimization Approach to Inverse Problems in Corrosion Detection from Partial Cauchy Data**, *International Union for Theoretical and Applied Mechanics* (IUTAM) *Symposium on "Recent Advances in Moving Boundary Problems in Mechanics,"* University of Canterbury, Christchurch, New Zealand (with H. Azegami)

Dec 2017 **A Neumann-data-tracking Approach for Corrosion Detection Problem with the Robin Condition**, *The Japan Society of Industrial and Applied Mathematics* (JSIAM) *19th Research Meeting of the Mathematical Design Research Group*, Aichi Prefectural University Satellite Campus, Nagoya City, Aichi, Japan (with H. Azegami)

Aug 2017 *__On Hyers-Ulam Stability of Third Order Linear Differential Equations having Constant Coefficients__, *8th International Conference on Differential and Functional Differential Equations* (DFDE 2017), RUDN University, Moscow, Russia (with J. B. Bacani)

Jul 2016 **An Intriguing Application of Telescoping Sums**, *The Asian Mathematical Conference 2016* (AMC 2016), BNDCC, Bali, Indonesia (with J. B. Bacani)

Stability Switch and Hopf-Bifurcation in a Delayed Intraguild Predation Model, *The Asian Mathematical Conference 2016* (AMC 2016), BNDCC, Bali, Indonesia (with J. B. Bacani)

***Behavior of Two-Dimensional Competitive System of Nonlinear Difference Equations of Higher Order**, *The Asian Mathematical Conference 2016* (AMC 2016), BNDCC, Bali, Indonesia (with J. B. Bacani)

***The class of admissible perturbations of special expressions involving completely monotonic functions**, *The Asian Mathematical Conference 2016* (AMC 2016), BNDCC, Bali, Indonesia (with J. B. Bacani)

Jun 2016 **Steffensen's Analogue for Approximating Roots of Polynomial Equations**, *The 2nd International Conference "Numerical Computations: Theory and Algorithms"* (NUMTA 2016), Club Med Resort "Napitia" Pizzo Calabro, Reggio Calabria, Italy (with J. B. Bacani)

***Stabilizing Role of Harvesting on a Chaotic Intraguild Predation Model**, *Mathematical Methods and Models in Biosciences"* (BIOMATH 2016), University centre Bachinovo, Blagoevgrad, Bulgaria (with J. A. Collera and J. P. T. Viernes)

Jan 2016 ***Some Characteristics of the Closed-Form Solutions of Two Nonlinear Difference Equations**, *2nd International Conference on Mathematical Sciences and Statistics* (ICMSS 2016), Kuala Lumpur, Selangor, Malaysia (with J. B. Bacani)

Sep 2015 **On k-Fibonacci Numbers with Applications to Continued Fractions**, *International Conference on Mathematics, its Applications and Mathematics Education 2015* (ICMAME 2015), Sanata Dharma University, Yogyakarta, Indonesia (with J. B. Bacani)

Jun 2015 **Some Properties of the Second-Order Perturbation of the Identity Operator**, *International Conference on Applied Mathematics and Mathematical Modeling 2015* (ICAAMM 2015) *(in honor of Prof. Dr. Ravi P. Agarwal)*, Yildiz Technical University, Istanbul, Turkey (with J. B. Bacani)

Jun 2015 **On the Second Shape Derivative of the Kohn-Vogelius Objective Functional Using the Velocity Method**, *International Conference on Recent Advances in Pure and Applied Mathematics 2015* (ICRAPAM 2015), Istanbul Commerce University, Istanbul, Turkey (with J. B. Bacani)

May 2015 **Shape Optimization Techniques for Solving the Shape Derivative of the Kohn-Vogelius Objective Functional**, *2015 Mathematical Society of the Philippines* (MSP) *Annual Convention*, Plaza Del Norte and Convention Center, Laoag City, Ilocos Norte, Philippines (with J. B. Bacani)

May 2014 **On second-order linear recurrent functions with period k and proofs to two conjectures of Sroysang**, *2014 Mathematical Society of the Philippines* (MSP) *Annual Convention*, Sarabia Manor Hotel and Convention Center, Iloilo City, Iloilo, Philippines

Dec 2013 **Some New Properties of Jacobsthal and Jacobsthal-Lucas Numbers**, *3rd International Conference on Mathematical Sciences* (ICMS3), PWTC, Kuala Lumpur, Malaysia

Dec 2013 **Complete Solutions to the Diophantine Equation $2^x + 3^y = z^2 \pm 1$**, *2013 Mathematical Society of the Philippines-Cebu* (MSP-Cebu) *Annual Convention*, Cebu Normal University, Cebu City, Cebu, Philippines

On Second-Order Linear Recurrent Functions, *2013 Mathematical Society of the Philippines-Cebu* (MSP-Cebu) *Annual Convention*, Cebu Normal University, Cebu City, Cebu, Philippines

May 2013 **On Two Open Problems of B. Sroysang**, *2013 Mathematical Society of the Philippines* (MSP) *Annual Convention*, The Legend Hotel, Puerto Princesa, Palawan, Philippines

Other Talks

Feb 2013 **On Two Diophantine Equations $4^x - 7^y = 3z^2$ and $4^x - 19^y = 3z^2$**, *2013 National Research Conference "Looking Forward in Arts and Sciences: A Significant Leap to Development"*, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines

Jul 2011 **Arithmetic Sequence with Three Alternate Common Differences**, *2nd Math Research Colloquium*, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines

Poster Presentations

Jul 2018 ***An Analytical Approach in Solving a System of Nonlinear Difference Equations**, *National Academy of Science and Technology Philippines' 40th Annual Scientific Meeting*,The Manila Hotel, Manila, Philippines (with J. B. Bacani)

Jul 2017 *__Shape Optimization of the Bernoulli Problem by Tracking the Neumann Data: A Lagrangian Formulation__, *National Academy of Science and Technology Philippines' 39th Annual Scientific Meeting*,The Manila Hotel, Manila, Philippines (with J. B. Bacani)

May 2017 *__On Generalized Fibonacci Numbers__, *2015 Mathematical Society of the Philippines* (MSP) *Annual Convention*, The Oriental Legazpi, Legazpi City, Albay, Philippines (with J. B. Bacani)

Mar 2017 *__Behavior of Two-Dimensional Competitive System of Nonlinear Difference Equations of Higher Order__, *National Research Council of the Philippines* (NRCP) *Annual Scientific Conference and 84th General Membership Assembly*, PICC, Pasay City, Philippines (with J. B. Bacani)

Jul 2016 __Dynamical Behavior of a Delayed Three-Species Model with Ivlev Functional Response__, *National Academy of Science and Technology Philippines' 38th Annual Scientific Meeting*,The Manila Hotel, Manila, Philippines (with J. A. Collera)

*__Steffensen's Analogue for Approximating Roots of Polynomial Equations__, *National Academy of Science and Technology Philippines' 38th Annual Scientific Meeting*,The Manila Hotel, Manila, Philippines (with J. B. Bacani)

__The First and Second-Order Shape Derivatives of an Objective Functional using Non-autonomous Velocity Fields__, *National Academy of Science and Technology Philippines' 37th Annual Scientific Meeting*,The Manila Hotel, Manila, Philippines (with J. B. Bacani)

May 2015 __On Two Nonlinear Difference Equations with Solutions Associated to Horadam Numbers__, *2015 Mathematical Society of the Philippines* (MSP) *Annual Convention*, Plaza Del Norte and Convention Center, Laoag City, Ilocos Norte, Philippines

Dec 2014 *__The Analysis of Bernoulli Free Boundary Problem using the Velocity Method and Second-Order Perturbation of Identity Technique__, *2014 UP OVPAA Research Symposium*, NIP, University of the Philippines, Diliman, Quezon City, Philippines (with J. B. Bacani)

Jul 2014 __Modeling Actuarial Present Value under Stochastic Discount Function with Jump Processes__, *36th Annual Scientific Meeting: Infrastructure, Information and Innovation (I3) For National Development, Competitiveness And Resiliency*, PICC, Pasay City, Philippines

May 2013 __On Some Smarandache Determinant Sequences__, *2013 Mathematical Society of the Philippines* (MSP) *Annual Convention*, The Legend Hotel, Puerto Princesa, Palawan, Philippines

Professional (Research and Teaching) Experience

Nov 2024 – Oct 2026 **JSPS Postdoctoral Fellow**

Oct 2020 – Oct 2024 **JST CREST Postdoctoral Researcher**, Kimura-Notsu-vanMeurs Laboratory, Analysis Group, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan

Sep 2024 – Oct 2024
May 2024 – Aug 2024
Jan 2024 – Apr 2024 **Adjunct Assistant Professor** (Part-Time), Temple University, Japan Campus, Setagaya City, Japan. Course Taught (Undergraduate Course): *College Algebra*

Apr 2024 – June 2024
Apr 2023 – June 2023 **Part-time Lecturer**, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University, Kanazawa, Japan. Course Taught (Graduate Course): *Applied Analysis*

Oct 2016 – Sep 2017 **Research Student** (Japanese Government (MEXT) Scholar), Department of Complex Systems Science, Graduate School of Information Science, Nagoya University, Nagoya, Japan

Aug 2014 – July 2016 **Research Assistant** (Full-Time), *The Analysis of Bernoulli Free Boundary Problem using the Velocity Method and Second-Order Perturbation of Identity Technique* (Project No.: **OVPAA-EIDR-C05-015**), Department of Mathematics and Computer Science, College of Science, University of the Philippines Baguio, Baguio City, Philippines

Jan 2015 – Jun 2015 **Lecturer** (Temporary), Department of Mathematics and Computer Science, College of Science, University of the Philippines Baguio, Baguio City, Philippines. Course Taught (Undergraduate Course): *Introduction to Calculus*

Nov 2013 – Apr 2014 **Instructor** (Full-Time), Department of Mathematics and Physics, College of Arts and Sciences, Central Luzon State University, Science City of Muńoz, Philippines. Courses Taught (Undergraduate Courses): *Mathematical Modeling in Biology; Elementary Analysis I, II, III; Analytic Geometry; College Algebra and Plane Trigonometry*

Apr 2011 – Oct 2013 **Lecturer** (Part-Time), Department of Mathematics and Physics, College of Arts and Sciences, Central Luzon State University, Science City of Muńoz, Philippines. Courses Taught (Undergraduate Courses): *Elementary Differential Equations; Elementary Analysis I, II, III; Analytic Geometry; College Algebra and Plane Trigonometry*

Service and Other Extension Works

Referee/Reviewer Advanced Mathematical Models & Applications ∗ Advances and Applications in Mathematical Sciences ∗ Applied Mathematics and Optimization ∗ Beni-Suef University Journal of Basic and Applied Sciences ∗ Computers & Mathematics with Applications ∗ Dynamics of Continuous, Discrete and Impulsive Systems Series A: Mathematical Analysis ∗ European Journal of Pure and Applied Mathematics ∗ IEEE Transactions on Circuits and Systems I: Regular Papers ∗ International Electronic Journal of Algebra ∗ International Journal of Biomathematics ∗ International Journal of Computational Fluid Dynamics ∗ Inverse Problems ∗ Italian Journal of Pure and Applied Mathematics ∗ Journal of Analysis & Number Theory ∗ Journal of Applied Mathematics and Computing ∗ Journal of Applied Mathematics & Informatics ∗ Malaysian Journal of Mathematical Sciences ∗ Journal of Mathematics and Computer Science ∗ Mathematical Methods in the Applied Sciences ∗ Mathematical Sciences Letters ∗ Miskolc Mathematical Notes ∗ Modern Stochastics: Theory and Applications ∗ PLOS One ∗ Special Matrices ∗ Universal Journal of Mathematics and Applications

Thesis Co-Supervisor *On the Diophantine Equations* $p^{qx} \pm (p^q + 1)^y = z^2$ *and* $(p^q + 1)^x - p^{qy} = z^2$, Anna Clarice Yanday, Thesis for the degree Master of Science in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, November 21, 2022

Thesis Examiner *Computational Approach to Finding High Rank θ-Congruent Number Elliptic Curves*, Jenina Marie M. Galang, Thesis for the degree Master of Science in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, June 18, 2025

Well-posedness of Navier-Stokes-Voigt System with forces of Low Time-Space Regularity, Junius Wilhelm G. Bueno, Thesis for the degree Doctor in Philosophy in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, January 13, 2025

Ranks of Elliptic Curves and the θ - Congruent Number Problem, Renz Jimwel S. Mina, Thesis for the degree Doctor in Philosophy in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, May 29, 2023

Thesis Reader *On a Modified Giuga's Congruence*, Kenneth S. Caasi, Thesis for the degree Master of Science in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, May 30, 2022

An Alternative Particle Swarm Optimization Algorithm using Gamma Distribution Function, Nialle Loui Mar T. Alcantara, Thesis for the degree Master of Science in Mathematics, Department of Mathematics and Computer Science, University of the Philippines Baguio, Baguio City, Benguet, Philippines, January 17, 2022

Mathematics Tutor *Learning Resource Center*, University of the Philippines Baguio, Baguio City, Benguet, Philippines (June 2008 – October 2010)

Scientific Computing Skills

FreeFEM++ · Python · Matlab · Mathematica

Languages

Filipino · English

References

Available upon request