

DUONG NGOC SON

Curriculum Vitae

Faculty of Fundamental Sciences
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Education

- 2020 **Habilitation**, University of Vienna, Austria.
Habilitation thesis: *"Some aspects of CR manifolds"*
- 2012 **Ph.D.** Mathematics, University of California, San Diego, United States.
Ph.D thesis: *"Transversality of CR mappings between CR submanifolds of complex spaces"*
Advisor: Professor Peter Ebenfelt.
- 2010 **C.Phil.** Mathematics, University of California, San Diego, United States.
- 2007 **M.S.** Mathematics, Hanoi National University of Education, Vietnam.
- 2004 **B.S.** Mathematics, Hanoi National University of Education, Vietnam.

Professional Appointments

- 7/2022– Phenikaa University, Hanoi, Vietnam—*Lecturer*
- 2017–2022 University of Vienna, Austria—*Scientist*
- 2015–2017 Texas A&M University, Qatar campus—*Postdoctoral Research Associate*
- 2012–2015 University of California, Irvine, CA, United States—*Visiting Assistant Professor*
- 2008–2012 University of California at San Diego, CA, United States—*Graduate Assistant*
- 2004–2008 Hanoi National University Education, Vietnam—*Teaching Assistant/Lecturer*

Teaching Experience

- 2022–now *Regular teaching at PHENIKAA University, Hanoi, Vietnam*
 - 2024/25: *Linear Algebra, Numerical Methods*
 - 2023/24: *Numerical Methods, Linear Algebra, Functions of a Complex Variable, Analysis, Statistics and Probability*
 - 2022/23: *Numerical Methods, Linear Algebra, Analysis*
- 2012–2015 *Regular teaching at University of California, Irvine*
 - 2015: *Elementary Differential Equations*
 - 2014: *Complex Analysis, Elementary Differential Equations, Analysis of Several Variables, Single Variable Calculus*
 - 2013: *Elementary Analysis, Analysis in Several Variables, Linear Algebra, Modern Geometry, Multivariate Calculus I, Complex Analysis*
 - 2012: *Infinite Series and Basic Linear Algebra*
- 2008–2012 *Teaching Assistant at University of California, San Diego*
Employed as a teaching assistant and an associate instructor and taught various courses.

2004–2008 *Teaching Assistant/Lecturer at Hanoi National University of Education*

Employed as a teaching assistant (09/2004–06/2007), a lecturer (09/2007–08/2008), and worked in various courses including undergraduate calculus, undergraduate complex analysis, measure and integration theory, and functional analysis.

Grants and Awards

- 2024 Phenikaa University Outstanding Scientist Award 2023 (Nhà khoa học tiêu biểu 2023)
- 2018–2020 Project leader (PI) of the Lise Meitner FWF-Projekt M2472-N35 “Analysis and Geometry on CR manifolds,” from the Austrian Science Fund, €169,260.00
- 2012 Best Poster Award, VEF Annual Conf., Louisiana Univ., Shreveport, LA, United States.
- 2008 Vietnam Education Foundation Fellowship, United States.
- 2004 Student Research Report Award, Ministry of Education and Training, Vietnam.
- 2001, 2002 National Mathematical Competition for undergraduate students, Vietnam.
- 2000 National Mathematical Competition for high school students, Vietnam.

Research Interest

Complex Analysis, Cauchy-Riemann (CR) Geometry.

List of Publications

- [A1] [With Tran Van Thuy and Pham Truong Xuan] On a nonhomogenous heat equation on the complex plane. *Internat. J. Math.*, Vol. 35, No. 14 (2024) Article No. 2450060. DOI: 10.1142/S0129167X24500605
- [A2] [With Michael Reiter] On CR maps between hyperquadrics and Winkelmann hypersurfaces. *Internat. J. Math.*, Vol. 35, No. 12 (2024) Article No. 2450049. DOI: 10.1142/S0129167X24500496
- [A3] [With Giuseppe Della Sala, Bernhard Lamel, and Michael Reiter] On highly degenerate CR maps of spheres. *J. Geom. Anal.*, Vol. 34 (2024) art. no. 80. DOI: 10.1007/s12220-023-01495-4 | MR4691892 | Zbl 07796596 |
- [A4] The total Cartan curvature of Reinhardt surfaces. *J. Math. Anal. Appl.* Vol. 530(1), 1 Feb. 2024, 127652 DOI: 10.1016/j.jmaa.2023.127652 | MR4630914 | Zbl 1528.32053 |
- [A5] [with A. Aribi] Eigenvalues of the Kohn Laplacian and deformations of pseudohermitian structures on compact CR manifolds. *J. Spectr. Theory.* Vol. 13, No. 1 (2023) 319–345 DOI: 10.4171/JST/443 MR4620359 | Zbl 1528.32054 |
- [A6] The CR umbilical locus of a real ellipsoid in \mathbb{C}^2 . *J. Math. Anal. Appl.* 518.1 (2023) 126701. DOI: 10.1016/j.jmaa.2022.126701 | MR4489870 | Zbl 1504.32093 |
- [A7] [with G. M. Dall’Ara] An upper bound for the first positive eigenvalue of the Kohn Laplacian on Reinhardt real hypersurfaces. *Proc. Amer. Math. Soc.* 151.1 (2023) 123–133. DOI: 10.1090/proc/16077 | MR4504613 | Zbl 1517.32111 |
- [A8] [with M. Reiter] On CR maps from the sphere into the tube over the future light cone. *Adv. Math.* Vol. 410, Part A, 12/2022, 108743. | MR4496726 | Zbl 1504.32045 |

- [A9] [with F. Haslinger] The ∂ -operator and real holomorphic vector fields. *Pure Appl. Math. Q.* 18, no. 3 (2022) 793 – 833. DOI: 10.4310/PAMQ.2022.v18.n3.a1 | MR4461939 | Zbl 07565121 |
- [A10] The holomorphic sectional curvature and “convex” real hypersurfaces in Kähler manifolds. *Colloq. Math.* 168, no. 1 (2022) 149–170. DOI: 10.4064/cm8412-4-2021 | MR4378569 | Zbl 1487.32195 |
- [A11] [with B. Lamel] The CR Ahlfors derivative and a new invariant for spherically equivalent CR maps. *Ann. Inst. Fourier (Grenoble)* 71, no. 5 (2021) 2137–2167. DOI: 10.5802/aif.3438 | MR4398258 | Zbl 1487.32187 |
- [A12] [with M. Reiter] On the Chern–Moser–Weyl tensor of real hypersurfaces. *J. Math. Soc. Japan* 73 (2021), no. 1, 77–98. DOI: 10.2969/jmsj/82598259 | MR4203322 | Zbl 1462.32051 |
- [A13] Semi-isometric immersions of CR manifolds into Kähler manifolds and applications. *Ann. Sc. Norm. Super. Pisa Cl. Sci. (5)* Volume XXII, no. 2 (2021) 957–987. DOI: 10.2422/2036-2145.201902_008 | MR4288678 | Zbl 07417794 |
- [A14] [with F. Haslinger] The ∂ -complex on weighted Bergman spaces on Hermitian manifolds. *J. Math. Anal. Appl.* 487, no. 1 (2020) 123994. DOI: 10.1016/j.jmaa.2020.123994 | MR4074193 | Zbl 1439.32013 |
- [A15] [with F. Berger and G. M. Dall’Ara] Exponential decay of the Bergman kernels on complete Hermitian manifolds with Ricci curvature bounded from below. *Complex Var. Elliptic Equ.* 65, no. 12 (2020) 2086–2111. DOI: 10.1080/17476933.2019.1691173 | MR4170198 | Zbl 1462.32007 |
- [A16] [with S.-Y. Li] CR-analogue of Siu- $\partial\bar{\partial}$ -formula and applications to rigidity problem for pseudo-Hermitian harmonic maps. *Proc. Amer. Math. Soc.* 147, no. 12 (2019) 5141–5151. DOI: 10.1090/proc/12997 | MR4021076 | Zbl 1429.32037 |
- [A17] [with S.-Y. Li] The Webster scalar curvature and sharp upper and lower bounds for the first positive eigenvalue of the Kohn-Laplacian on real hypersurfaces. *Acta Math. Sinica (Engl. Ser.)* 34, no. 8 (2018) 1248–1258. DOI: 10.1007/s10114-018-7415-0 | MR3843432 | Zbl 1404.32071 |
- [A18] [with S.-Y. Li and G.-J. Lin] The sharp upper bounds for the first positive eigenvalue of the Kohn-Laplacian on compact strictly pseudoconvex hypersurfaces. *Math. Z.* 288, no. 3-4 (2018) 949–963. DOI: 10.1007/s00209-017-1922-z | MR3778986 | Zbl 1396.32017 |
- [A19] [with P. Ebenfelt and D. Zaitsev] A family of compact strictly pseudoconvex hypersurfaces in \mathbb{C}^2 without umbilical points. *Math. Res. Lett.* 25, no. 1 (2018) 75–84. DOI: 10.4310/MRL.2018.v25.n1.a4 | MR3818615 | Zbl 1408.32033 |
- [A20] The Schwarzian derivative and Möbius equation on strictly pseudoconvex CR manifolds. *Commun. Anal. Geom.* 26, no. 2 (2018) 237–269. DOI: 10.4310/CAG.2018.v26.n2.a1 | MR3805160 | Zbl 1392.32016 |
- [A21] [with P. Ebenfelt] Umbilical points on three dimensional strictly pseudoconvex CR manifolds. I. manifolds with $U(1)$ -action. *Math. Ann.* 368, no. 1 (2017) 537–560. DOI: 10.1007/s00208-016-1439-5 | MR3651582 | Zbl 1375.32056 |

- [A22] [with S.-Y. Li and X. Wang] A new characterization of the CR sphere and the sharp eigenvalue estimate for the Kohn Laplacian. *Adv. Math.* 281 (2015) 1285–1305. DOI: 10.1016/j.aim.2015.06.008 | MR3366867 | Zbl 1319.53032 |
- [A23] [with P. Ebenfelt] Holomorphic mappings between pseudoellipsoids in different dimensions. *Methods Appl. Anal.* 21, no. 3 (2014) 365–377. DOI: 10.4310/MAA.2014.v21.n3.a6 | MR3286441 | Zbl 1302.32016 |
- [A24] [with J. Lebl, A. Minor, R. Shroff, and Y. Zhang] CR singular images of generic submanifolds under holomorphic maps, *Ark. Mat.* 52, no. 2 (2014) 301–327. DOI: 10.1007/s11512-013-0193-0 | MR3255142 | Zbl 1310.32040 |
- [A25] [with P. Ebenfelt] Transversality of holomorphic mappings between real hypersurfaces in complex spaces of different dimensions. *Illinois J. Math.* 56, no. 1 (2012) 33–51. DOI: 10.1215/ijm/1380287458 | MR3117016 | Zbl 1293.32043 |
- [A26] [with P. Ebenfelt] CR transversality of holomorphic mappings between generic submanifolds in complex spaces. *Proc. Amer. Math. Soc.* 140, no. 5 (2012) 1729–1738. DOI: 10.1090/S0002-9939-2011-11091-8 | MR2869157 | Zbl 1244.32011 |
- [A27] A note on interpolation in the Lumer’s Nevanlinna class. *Indag. Math.* 18, no. 3 (2007) 447–453. DOI: 10.1016/S0019-3577(07)80033-4 | MR2373692 | Zbl 1143.32004 |
- [A28] Remarks on subharmonic envelopes. *Pub. Mat. (Barcelona)* 50, no. 2 (2006) 447–456. DOI: 10.5565/PUBLMAT_50206_09 | MR2273669 | Zbl 1129.31001 |

Dissertations

- [B1] *Some aspects of CR manifolds*. Habilitationsschrift–Universität Wien, Vienna, Austria, 2020.
- [B2] *Transversality of CR mappings between CR submanifolds of complex spaces*. Thesis (Ph.D.)–University of California, San Diego. 2012. 70 pp. ISBN: 978-1267-33526-5. Downloadable at [eScholarship](#)

List of Conference and Seminar Talks

Conferences

- 2025 *Osaka Workshop on Conformal and CR Geometry*, Osaka University, Toyonaka Campus, Toyonaka, Osaka, Japan, Feb 17 – 21 (upcoming).
- 2025 *The third Vietnam-Korea joint workshop on selected topic in Mathematics, Session A – Algebra, Geometry and Topology*, Institute of Mathematics, VAST, Hanoi, Jan 6 – 9.
- 2024 *Conference on Complex Analysis and Geometry*, VIASM, Hanoi, Vietnam, Aug. 26 – 29.
- 2024 *Hội nghị Đại số – Lí thuyết số – Hình học – Tô pô (ĐaHiTô 2024)*, Báo cáo mời, Trường Đại học Đà Lạt, Lâm Đồng, 28 – 31/5/2024.
- 2023 *Workshop on Harmonic Analysis and Several Complex Variables 2023*, VIASM, Hanoi, Vietnam, Nov 16 – 17.
- 2023 *The 10th National Conference of Mathematics*, University of Science and Education, University of Danang, Da Nang, Vietnam, Aug 8–12.
- 2023 *Workshop on Differential Equations and Related Topics*, VIASM, Hanoi, Vietnam, Mar 9.

- 2021 *Some selected Topics in Complex Analysis and Complex Geometry*, a conference in honor of Prof. Le Mau Hai and Prof. Do Duc Thai, VIASM, Hanoi, Vietnam (Online), Dec 9–10.
- 2021 *DMV-ÖMG Jahrestagung 2021, §8 Funktionalanalysis, Reelle, Komplexe Analysis*, Passau, Germany (Online), Sep 27 – Oct 1.
- 2021 *Minisymposium “Complex Analysis and Geometry,” in the 8th European Congress of Mathematics*, Portorož, Slovenia (Online), July 5 – 10.
- 2019 *Special Session on Complex Geometry and Dynamical Systems, American Mathematical Society – Vietnam*, Quy Nhon, Vietnam, June 10 – 13.
- 2019 *Complex Analysis, PDE, and their Applications*, Hanoi, Vietnam, June 2 – 9.
- 2018 *The 26th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications*, Fuzhou, China, July 9–13.
- 2018 *Second Central European Complex Analysis Meeting*, Vienna, Austria, April 12–14.
- 2017 *Conference on Complex Geometry and PDEs*, American Univ of Beirut, Lebanon, May 22–26.
- 2017 *Analysis and Geometry in Several Complex Variables II*, Texas A&M University at Qatar, Doha, Qatar, Jan 8–12.
- 2015 Workshop on “*Several complex variables and CR geometry*,” Erwin Schrödinger International Institute for Mathematical Physics (ESI), Vienna, Austria, Nov 3–13.
- 2015 *Summer Seminar*, Vietnam National University, Hanoi, Vietnam, August 6.
- 2015 *Analysis and Geometry in Several Complex Variables*, Texas A&M University at Qatar, Doha, Qatar, Jan 4–8.
- 2014 *Hayama Symposium of Several Complex Variables XVII*, Hayama, Japan, Jul 19–22.
- 2012 *French Mathematical Society and Vietnamese Mathematical Society joint Congress*, Hue City, Vietnam, Aug 20–24.
- 2012 *Southeast Analysis Meeting XXVIII*, University of Alabama, AL, United States, Mar 9–10.
- 2011 *RTG Workshop & Lecture Series, Topics in Several Complex Variables and CR Geometry*, University of Michigan, United States, Oct 8–9.

Seminars

- 2024 Phenikaa Math Seminar, “*On CR maps between real hypersurfaces in complex spaces*”, 24th floor, A9 building, Phenikaa University Campus, Thursday, May 23.
- 2023 Analysis Seminar, “*Some eigenvalue problems in CR geometry*”, University of Science, Vietnam National University, Hanoi, Friday, October 6.
- 2023 Hanoi University of Science and Technology seminar, “*Some eigenvalue problems in CR geometry*”, 106-D3, School of Applied Mathematics and Informatics, 1 Dai Co Viet, Hanoi, Vietnam, Friday, July 21.
- 2023 Vietnam Institute for Advanced Study in Mathematics, “*On some open problems in CR geometry*” I & II, July 4, 11.
- 2023 Kraków, Poland, Complex Analysis and elliptic PDEs seminar, “*On CR maps between real hypersurfaces in complex spaces*”, Apr 17 (online).

- 2023 Vietnam Academy of Science and Technologies, Institute of Mathematics, Seminar on Algebra and Number Theory, Feb 15.
- 2022 Phenikaa University, Faculty of Fundamental Sciences, Phenikaa Math Seminar, "*Proper holomorphic maps from the complex 2-ball into the 3-dimensional classical domain of type IV.*", Aug 18.
- 2022 IBS Center for Complex Geometry, Several Complex Variables Seminar, "*Proper holomorphic maps from the complex 2-ball into the 3-dimensional classical domain of type IV.*" Korea (Online), Apr 27.
- 2020 Universität zu Köln, Semiklassische Analysis und Darstellungstheorie, "*Semi-isometric CR immersions of CR manifolds into Kähler manifolds.*" Germany, Jan 21.
- 2019 Universität Wien, Complex Analysis Seminar, "*On the Chern-Moser-Weyl tensor of real hypersurfaces.*" Austria, Apr 9.
- 2017 Universität Wien, Complex Analysis Seminar, Austria, Oct 31.
- 2016 Fujian Normal University, Fuzhou, Fujian, China, Jul 14.
- 2015 University of California, Riverside, CA, United States, Jan 22.
- 2013 University of California, Irvine, CA, United States, Nov 19.
- 2012 Rutgers University, Piscataway, NJ, United States, Feb 24.
- 2012 University of California, Irvine, CA, United States, Feb 21.
- 2011 University of California at San Diego, CA, United States, Dec 6.

Scientific Visits

- 2024 Tamkang University, Tamsui, New Taipei City, Taiwan, *Visitor* (9-13/12/2024).
- 2024 Vietnam Inst. Adv. Study Math. (VIASM), Hanoi, Vietnam, *Researcher* (Jul.–Sept.).
- 2023 Vietnam Inst. Adv. Study Math. (VIASM), Hanoi, Vietnam, *Principal Researcher* (Jul.–Sept.).
- 2016 University of California, San Diego, California, United States (Aug., 2 weeks).
- 2016 Fujian Normal University, Fuzhou, Fujian, China (Jul., 2 weeks).
- 2007 Université Paul Sabatier, Toulouse, France (May–Jun., 2 months).