Duong Ngoc Son

Curriculum Vitae

Faculty of Fundamental Sciences
Phenikaa University
Yen Nghia, Ha Dong 12116, Hanoi
✉ *son@duongnotes.com*
https://duongnotes.com

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*
	2022/24: *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 undegraduate 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 ⟶ Project's Final Report.

2012   Best Poster Award, VEF Annual Conference, Louisiana University, Shreveport, LA, United States.

2008   Vietnam Education Foundation Fellowship, United States.

2004   Student Research 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

Published peer-reviewed papers

[B1]   [With Michael Reiter] On CR maps between hyperquadrics and Winkelmann hypersurfaces. *Internat. J. Math.*, accepted (1 June 2024).

[B2]   [With Giuseppe Della Sala, Bernhard Lamel, and Michael Reiter] On highly degenerate CR maps of spheres. *J. Geom. Anal.*, Vol. 34, art. no. 80, 2024. `DOI: 10.1007/s12220-023-01495-4` | MR4691892 | Zbl 07796596 |

[B3]   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 |

[B4]   [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 |

[B5]   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 |

[B6]   [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 |

[B7]   [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 |

[B8]   [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 |

[B9] 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 |

[B10] [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 |

[B11] [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 |

[B12] 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 |

[B13] [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 |

[B14] [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 |

[B15] [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 |

[B16] [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 |

[B17] [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 |

[B18] [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 |

[B19] The Schwarzian derivative and Möbius equation on strictly pseudo-convex CR manifolds. *Commun. Anal. Geom.* 26, no. 2 (2018) 237–269. **DOI: 10.4310/CAG.2018.v26.n2.a1** | MR3805160 | Zbl 1392.32016 |

[B20] [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 |

[B21] [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 |

[B22] [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 |

[B23] [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 |

[B24] [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 |

[B25] [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 |

[B26] 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 |

[B27] Remarks on subharmonic envelopes. *Pub. Mat. (Barcelona)* 50, no. 2 (2006) 447–456. DOI: `10.5565/PUBLMAT_50206_09` | MR2273669 | Zbl 1129.31001 |

Dissertations

[C1] *Some aspects of CR manifolds.* Habilitationsschrift–Universität Wien, Vienna, Austria, 2020.

[C2] *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

Invited Conference Talks

2024 *Hội nghị Đại số – Lí thuyết số – Hình học – Tôpô (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.

Seminar Talks

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, Semiklassiche 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   Vietnam Institute for Advanced Study in Mathematics, Hanoi, Vietnam, *Researcher* (July–September).

2023   Vietnam Institute for Advanced Study in Mathematics, Hanoi, Vietnam, *Principal Researcher* (July–September).

2016   University of California, San Diego, California, United States (August, 2 weeks).

2016   Fujian Normal University, Fuzhou, Fujian, China (July, 2 weeks).

2007   Université Paul Sabatier, Toulouse, France (May–June, 2 months).