

Curriculum Vitae

Name: Le Tuan Hoa (Mr.)

Nationality: Vietnamese

Date of birth: August 27th, 1957

Place of birth: Thanh hoa, Vietnam

Marital status: married, two sons

Spouse's name: Dinh Thi Quynh Van, born: April 4th, 1968

1st son: Le Tuan Linh, born: June 6th, 1993

2nd son: Le Tuan Minh, born: February 13th, 1998

Residence address: No 3, Ngach 106/15 Hoang Quoc Viet Road, Hanoi, Vietnam

Name and address of home institution:

Institute of Mathematics, Vietnam Academy of Science and Technology (IM-VAST)

18 Hoang Quoc Viet, 10307 Hanoi Vietnam

Tel: +84 24 37563474, Fax +84 24 37564303

E-mail address: lthoa@math.ac.vn

Education:

Primary school (1st- 7th grade): 1964 - 1971 in Thanh hoa, Vietnam

High school (8th-10th grade): 1971-1974, Special School in Mathematics of
Pedagogical University of Vinh, Vietnam

Academic Degrees:

M.Sc.: 1980, University of Minsk (Belorussia).

Title of the thesis: On arithmetic subgroups of anisotropic algebraic groups

Ph.D.: 1990, Halle University (Germany).

Advisor: Prof. W. Vogel

Title of the dissertation: Affine semigroup rings and applications

Dr. Sc.: 1995, IM-VAST

Title of the Dissertation: Castelnuovo-Mumford regularity and applications

Professional Appointments:

Current positions: Full professor

Previous positions:

- 1981 – 1996: Researcher at IM-VAST
- 1996-2004: Associate professor
- Since 2004: Full Professor:
- May 1998 – May 2011: Deputy Director of IM-VAST
- June 2011 - October 2013: Managing Director, Vietnam Institute For Advanced Study in Mathematics (VIASM)
- June 2013 - August 2017: Director of IM-VAST

Other Scientific Activities:

- 2004 – 2008: Vice –President and General Secretary of the Vietnam Mathematical Society
- 2008 – Aug 2013: President, Vietnam Mathematical Society
- Since 2010: Deputy Editor-in-Chief of Vietnam Journal of Mathematics
- 2012 – 2013: President, South-East Asian Mathematical Society (SEAMS)
- Since 2012: Editor of Southeast Asian Bulletin of Mathematics
- 2019 – 2025: Chair of Section Mathematics of (Vietnam) State Council for Professorship
- 2023 – 2026: Member of IMU-CDC

Honor:

- Since November 2011: Member of The World Academy of Sciences for the advancement of science in developing countries (TWAS);
- Member of TWAS Council 2023 - 2026
- 2017: Hochiminh Prize for Science and Technology (shared with Professors Ngo Viet Trung and Nguyen Tu Cuong) – The most distinguished prize for a scientist awarded by Vietnam Government.

Field of interest:

Commutative Algebra, Combinatorics and Algebraic Geometry

Publication: My research focuses on the complexity of algebraic objects. Up today, more than 60 articles were published in international mathematical journals.

MathSciNet Listing:

<https://mathscinet.ams.org/mathscinet/search/author.html?mrauthid=234914>

5 selected publications:

1. **N. V. Trung and L. T. Hoa:** Affine semigroups and Cohen-Macaulay rings generated by monomials. Trans. Amer. Math. Soc. 298(1986), 145-167.
2. **L. T. Hoa and C. Miyazaki:** Bounds on Castelnuovo-Mumford regularity for generalized Cohen-Macaulay graded rings. Math. Ann. 301(1995), 587-598.
3. **L. T. Hoa,** Finiteness of Hilbert functions and Castelnuovo-Mumford regularity of initial ideals, Trans. Amer. Math. Soc. 360(2008), 4519-4540.
4. **L. T. Hoa and T.N. Trung,** Partial Castelnuovo-Mumford regularities of sums and intersections of monomial ideals, Math. Proc. Cambridge Soc. 149 (2010), 229-246.
5. **L. T. Hoa,** Asymptotic behavior of Integer Programming and the stability of the Castelnuovo-Mumford regularity, Math. Program. 193(2022), 157 - 194; DOI: 10.1007/s10107-020-01595-x.

LIST OF PUBLICATIONS

of Le Tuan Hoa

MathSciNet Listing:

<https://mathscinet.ams.org/mathscinet/search/author.html?mrauthid=234914>

1. **With N. V. Trung:** Affine semigroups and Cohen-Macaulay rings generated by monomials. *Trans. Amer. Math. Soc.* **298**(1986), 145-167. Corrigendum to: "Affine semigroups and Cohen-Macaulay rings generated by monomials" [Trans. Amer. Math. Soc. 298 (1986), no. 1, 145–167; MR0857437]. *Trans. Amer. Math. Soc.* **305** (1988), no. 2, 857.
2. Classification of the triple projections of Veronese varieties. *Math. Nachr.* **128**(1986), 185-197.
3. **With P. D. Dieu and L. C. Thanh:** Average polynomial time complexity of some NP-complete problems. *Theor. Comput. Sci.* **46**(1986), 219-237.
4. On Segre products of affine semigroup rings. *Nagoya Math. J.* **110**(1988), 113-128.
5. Algorithmical aspects of the problem of classifying multi-projections of Veronese varieties. *Manuscripta Math.* **63**(1989), 317-331.
6. **With M. Fiorentini:** On monomial k -Buchsbaum curves in $\mathbb{P}^r$. *Ann. Univ. Ferrara, Sez. VII, Sc. Mat.* **36**(1990), 159-174.
7. The Gorenstein property depends upon characteristic for affine semigroup rings. *Arch. Math.* **56**(1991), 228-235.
8. **With J. Stueckrad and W. Vogel:** Towards a structure theory for projective varieties of degree = codimension + 2. *J. Pure Appl. Algebra* **71**(1991), 203-231.
9. A note on projective monomial surfaces. *Math. Nachr.* **154**(1991), 183-188.
10. On monomial k -Buchsbaum curves in $\mathbb{P}^3$. *Manuscripta Math.* **73**(1991), 423-436.
11. **With R. Fr\"oberg:** Segre products and Rees algebras of face rings. *Comm. Algebra* **20**(1992), 3369-3380.
12. On minimal free resolutions of projective varieties of degree = codimension + 2. *J. Pure Appl. Algebra.* **87**(1993), 241-250.
13. Koszul homology and generalized Cohen-Macaulay modules. *Acta Math. Vietnamica.* **18**(1993), 91-98.
14. On reduction numbers and Rees algebras of powers of an ideal. *Proc. Amer. Math. Soc.* **119**(1993), 415-422.
15. **With R. M. Miro-Roig and W. Vogel:** On numerical invariants of locally Cohen-Macaulay schemes in $\mathbb{P}^n$. *Hiroshima math. J.* **24**(1994), 299-316.

16. **With W. Vogel:** Castelnuovo-Mumford regularity and hyperplane sections. *J. Algebra*. **163**(1994), 348-365.
17. **With M. Fiorentini:** Some remarks on generalized Cohen-Macaulay rings. *Bull. Belg. Math. Soc.* **1**(1994), 507-519.
18. **With H. Bresinsky, F. Curtis and M. Fiorentini:** On the structure of local cohomology modules for projective monomial curves in $\mathbb{P}^3$. *Nagoya Math. J.* **136**(1994), 81-114.
19. **With S. Zarzuela:** Reduction numbers and $\mathfrak{a}$ -invariants of good filtrations. *Comm. Algebra*. **22**(1994), 5635-5656.
20. Bounds for the Betti numbers of a projective curve. In Proceeding of the International Conference "*Commutative Algebra*", Vechta 1994 (eds: W. Bruns, J. Herzog, M. Hochster and U. Vetter), pp. 85-88.
21. **With C. Miyazaki:** Bounds on Castelnuovo-Mumford regularity for generalized Cohen-Macaulay graded rings. *Math. Ann.* **301**(1995), 587-598.
22. Bounds for the number of generators of generalized Cohen-Macaulay ideals. *J. Algebra* **178**(1995), 302-316.
23. **With R. M. Miro-Roig:** Bounds for the Betti numbers of generalized Cohen-Macaulay ideals. *Proc. Amer. Math. Soc.* **123**(1995), 2397-2405.
24. A note on the Hilbert-Samuel function in a two-dimensional local ring. *Acta Math. Vietnamica*. **21**(1996), 335-347.
25. Reduction numbers of equimultiple ideals. *J. Pure Appl. Algebra* **109**(1996), 111-126.
26. Postulation number of good filtrations. *Comm. Algebra* **25**(1997), 1961-1974.
27. **With N. V. Trung:** On the Castelnuovo-Mumford regularity and the arithmetic degree of monomial ideals. *Math. Z.* **229**(1998), 519-537.
28. Castelnuovo-Mumford regularity and defining equations of a locally Cohen-Macaulay algebra. *Commutative Algebra, Algebraic Geometry, and Computational Methods (Ed.: D. Eisenbud)*, Springer 1999, pp. 301 - 313.
29. **With H. Bresinsky:** On the reduction number of some graded algebras. *Proc. Amer. Math. Soc.* **127**(1999), 1257 - 1263
30. **With H. Bresinsky:** Minimal generating sets for a family of monomial curves in A^4 . *Commutative Algebra and Algebraic Geometry (ed. F. Van Oystaeyen), Lect. Notes in pure appl. Math. V.* **206**(1999), pp. 5 - 14
31. **With H. Allsop:** On quotient between length and multiplicity, *Comm. Algebra* **28** (2000), 815-828

32. **With H. Bresinsky:** On hereditary problems between I and $\text{in}(I)$, *Acta Math. Vietnamica* **26**(2001), 219-230.
33. **With J. Herzog and N.V. Trung,** Asymptotic linear bounds for the Castelnuovo-Mumford regularity, *Trans. Amer. Math. Soc.* **354**(2002), 1793-1809.
34. Asymptotic behavior of reduction numbers, *Proc. Amer. Math. Soc.* **130** (2002), 3151-3158.
35. *Đại số máy tính: Cơ sở Grobner*, NXB ĐHQG Hà Nội 2003, 290 tr. (Computer Algebra: Groebner bases, in Vietnamese).
36. **With J. Stueckrad,** Castelnuovo-Mumford regularity of simplicial toric rings, *J. Algebra* **259** (2003), 127-146
37. **With Eero Hyry,** On local cohomology and Hilbert function of powers of ideals, *manuscripta math.* **112**(2003), 77-92.
38. **With N.V. Trung,** Borel-fixed ideals and reduction number, *J. Algebra* **270** (2003), 335-346.
39. **With H. Bresinsky,** the k -Buchsbaum property for polynomial ideals, *J. Math. Kyoto Univ.* **43** (2003), 699--717.
40. **With Eero Hyry,** Castelnuovo–Mumford regularity of initial ideals, *J. Symb. Computation*, **38** (2004), 1327-1341.
41. Some computational problems in Commutative Algebra and Algebraic Geometry, In: “*Proceedings of VI-th Vietnamese Mathematical Conference* (Eds: H.H. Khoai, D.T. Thi and D.L. Van), VNU 2005, pp. 33-58.
42. *Đại số tuyến tính qua ví dụ và bài tập*, NXB ĐHQG Hà Nội 2006, 448 tr. (Linear Algebra: examples and problems, in Vietnamese).
43. **With E. Hyry,** Castelnuovo–Mumford regularity of canonical and deficiency modules, *J. Algebra*, **305** (2006), 877-900. Corrigendum to "Castelnuovo-Mumford regularity of canonical and deficiency modules"[*J. Algebra* **305** (2) (2006) 877–900] [MR2266858]. *J. Algebra* **323** (2010), no. 3, 864–865.
44. Stability of associated primes of monomial ideals, *Vietnam. J. Math.* **34**(2006), No.4, 473-487.
45. **With T. N. Trung,** Castelnuovo–Mumford regularity of sums of powers of polynomial ideals, *Comm. Algebra* **36**(2008), 806-820.
46. **With D. T. Ha,** Castelnuovo–Mumford regularity of some modules, *Comm. Algebra* **36**(2008), 992-1004.

47. Finiteness of Hilbert functions and Castelnuovo-Mumford regularity of initial ideals, *Trans. Amer. Math. Soc.* **360**(2008), 4519-4540.
48. **With. M. Hellus and J. Stueckrad**, Grobner bases of simplicial toric ideals, *Nagoya Math. J.* **196** (2009), 1-19.
49. **With. M. Hellus and J. Stueckrad**, Castelnuovo-Mumford regularity and reduction number of some monomial curves, *Proc. Amer. Math. Soc.* **138**(2010), 27-35.
50. **With T.N. Trung**, Partial Castelnuovo-Mumford regularities of sums and intersections of monomial ideals, *Math. Proc. Cambridge Soc.* **149** (2010), 229-246.
51. **With N. D. Tam**, On some invariants of a mixed product of ideals, *Arch. Math.* **94** (2010), 327-337.
52. **With D. H. Giang**, On local cohomology of a tetrahedral curve, *Acta Math. Vietnam.* **35** (2010), 229-241.
53. **With M. Chardin and D.T. Ha**, Castelnuovo-Mumford regularity of Ext modules and homological degree, *Trans. Amer. Math. Soc.* **363** (2011), 3439-3456
54. **With L.X. Dung**, Castelnuovo-Mumford regularity of associated graded modules and fiber cones of filtered modules, *Comm. Algebra* **40** (2012), 404-422.
55. **With M. Morales**, Non-linear behaviour of Castelnuovo–Mumford regularity, *J. Algebra* **356** (2012), 207 – 215.
56. **With L. X. Dung**, Dependence of Hilbert coefficients, *Manuscripta Math.* **149** (2016), Issue 1, pp 235-249 (DOI .1007/s00229-015-0726-6); Correction: DOI: 10.1007/s00229-017-0975-y.
57. **With T. N. Trung**, Castelnuovo-Mumford regularity of symbolic powers of two-dimensional square-free monomial ideals, *J. Comm. Algebra* **8** (2016), Issue 1, pp 77-88 (DOI: 10.1216/JCA-2016-8-1-77).
58. **With K. Kimura, N. Terai and T. N. Trung**, Stability of Depths of Symbolic Powers of Stanley-Reisner Ideals, *J. Algebra* **473** (2017) 307–323.
<http://dx.doi.org/10.1016/j.jalgebra.2016.10.036>
59. **With T. N. Trung**, Stability of Depth and Cohen-Macaulayness of Integral Closures of Powers of Monomial Ideals, *Acta Math. Vietnam* **43** (2018), 67-81; DOI 10.1007/s40306-017-0225-0
60. **With L. X. Dung**, A note on Castelnuovo-Mumford regularity and Hilbert coefficients, *J. Algebra Appl.* **18** (2019), No. 10, 1950191; 8 pp. DOI: 10.1142/S02194988195019134.
61. Powers of Monomial Ideals and Combinatorics, In “New Trends in Algebras and Combinatorics”, Proceedings of the 3rd International Congress in Algebras and Combinatorics (ICAC2017), Ed. K P Shum, E. Zelmanov, P. Kolesnikov, and S M Anita

Wong, Pages:149–178, World Scientific 2020,
https://doi.org/10.1142/9789811215476_0012.

62. The Development of Mathematical Research in Vietnam at a Glance, *Math.Intelligencer*, **42**(4) (2020), pp. 50-58; DOI 10.1007/s00283-020-09992-y;
63. Asymptotic behavior of Integer Programming and the stability of the Castelnuovo-Mumford regularity, *Math. Program.* **193** (2022) 157 - 194, DOI: 10.1007/s10107-020-01595-x.
64. Maximal Generating Degrees of Powers of Homogeneous Ideals, *Acta Math. Vietnam.* **47**(2022), 19–37; DOI 10.1007/s40306-021-00469-4.
65. Maximal generating degrees of integral closures of powers of monomial ideals, *J. Algebraic Combin.*, **56** (2022), 279–304; DOI 10.1007/s10801-021-01110-1.
66. **With Le Xuan Dung, Juan Elias**, Upper bounds on two Hilbert coefficients, *J. Algebra*, **633**(1) (2023), 563 - 590; DOI 10.1016/j.jalgebra.2023.06.036
67. Stability of maximal generating degrees of powers of monomial ideals, *Journal of Algebraic Combinatorics*, **62** (2025), Art. 23 (17 pages); DOI 10.1007/s10801-025-01450-2
68. **With Doan Quang Tien**, New bounds on Castelnuovo-Mumford regularity of monomial curves and application to sumsets, *Journal of Pure and Applied Algebra*, **230** (2026) 108323 (26 pages)