

# Pham Hung Quy

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Born: November 29, 1983—Namdinh, Vietnam  
Nationality: Vietnam  
Relation: Married with two daughters

## Current position

*Head of Office of Science Management and International Affairs*, FPT University  
*Associate Professor*, Department of Mathematics, FPT University

## Areas of specialisation

Commutative Algebra

- Local cohomology (splitting conditions, associated primes);
- Structure of finitely generated modules over local rings (irreducibility, Hilbert functions, limit closure);
- Characteristic  $p$  methods (Frobenius action, tight closure,  $F$ -singularities);
- Multiplicity theory.

## Appointments held

2018- Associate Professor, FPT University  
2018- Head of Office of Science Management and International Affairs, FPT University  
2016-2020 Part-time researcher, TIMAS  
2016 Postdoc, VIASM  
2007-2018 Lecturer, FPT University

## Education

- 2010-2013 PHD in Math, Institute of Mathematics, VAST, Hanoi  
Title: *On the splitting of local cohomology modules and applications*  
Advisor: Prof. Nguyen Tu Cuong
- 2005-2007 MSc in Math, Hanoi National University of Education  
Title: *Local cohomology theory*  
Advisor: Prof. Duong Quoc Viet
- 2001-2005 BSc in Math, Hanoi National University of Education

## Grants, honours & awards

- 2013 Thesis of the year, Hanoi Institute of Mathematics

## Visiting Positions (more than one week)

- Purdue University and University of Notre Dame, USU (06/2019, two weeks).
- University of Utah, USA (08-09/2017, two weeks).
- University of Mainz, Germany (11-12/2016, two weeks).
- Vietnam Institute for Advanced Study in Mathematics, 2016 (**postdoc**).
- Institute of Fourier, Grenoble, France, 05/2014.
- Vietnam Institute for Advanced Study in Mathematics, 09/2013–11/2013.
- Vietnam Institute for Advanced Study in Mathematics, 10/2012–01/2013.
- Meiji University, 11/2011.

## Publications

1. A Note on Jesmanowicz' conjecture for non-primitive Pythagorean triples (with Van-Thien Nguyen and Viet Kh. Nguyen), *Submitted*.
2. Asymptotic Lech's inequality (with Craig Huneke, Linqun Ma and Ilya Smirnov), *Submitted*.
3. Colength, multiplicity, and ideal closure operations (with Linqun Ma and Ilya Smirnov), *Submitted*, ArXiv:1907.00951.
4. Filter regular sequence under small perturbations (with Linqun Ma and Ilya Smirnov), *Submitted*, ArXiv:1907.03637.
5. Upper bound of multiplicity in prime characteristic (with Duong Thi Huong), *Submitted*, ArXiv:1901.00849.

6. On the structure of finitely generated modules over quotients of Cohen-Macaulay local rings (with Nguyen Tu Cuong), *Preprint* 2016, ArXiv:1612.07638.
7. On the limit closure of a sequence of elements in local rings (with Nguyen Tu Cuong), *Preprint* 2016, ArXiv:1608.08155.
8. On the index of reducibility of parameter ideals: The stable and limit values, *Acta Mathematica Vietnamica*, to appear 2019, arXiv:1903.01315.
9. On the associated primes of local cohomology (with Hailong Dao), *Nagoya Mathematical Journal*, to appear 2019, ArXiv:1602.00421.
10. Notes on the Frobenius test exponents (with Duong Thi Huong), *Communication in Algebra* **47** (2019), 2702–2710.
11. Nilpotence of Frobenius actions on local cohomology and Frobenius closure of ideals (with Thomas Polstra), *Journal of Algebra*, **529** (2019), 196–225.
12. Lech’s inequality, the Stückrad–Vogel conjecture, and uniform behavior of Koszul homology (with Patricia Klein, Linqun Ma, Ilya Smirnov and Yongwei Yao), *Advances in Mathematics* **347** (2019), 442–472.
13. On the index of reducibility of powers of a standard parameter ideal (with Nguyen Tu Cuong and Hoang Le Truong), *Journal of Algebra and its Applications* **18** (2019), 1950048, 17 pages.
14. On the uniform bound of Frobenius test exponents, *Journal of Algebra* **518** (2019), 119–128.
15. On the Frobenius actions on local cohomology modules and deformation (with Linqun Ma), *Nagoya Mathematical Journal* **232** (2018), 55–75.
16. On the length function of saturations of ideal powers (with Doan Trung Cuong and Pham Hong Nam), *Acta Mathematica Vietnamica*, **43** (2018), 275–288.
17. On the tight closure of parameter ideals in local rings  $F$ -rational on the puncture spectrum, *Journal of Pure and Applied Algebra*, **222** (2018), 1126–1138.
18. A study of the length function of generalized fractions (with Marcel Morales), *Proceedings of the Edinburgh Mathematical Society* **60** (2017), 721–737.
19.  $F$ -injectivity and Frobenius closure of ideals in Noetherian rings of characteristic  $p > 0$  (with Kazuma Shimomoto), *Advances in Mathematics* **313** (2017), 127–166.
20. Injective modules and torsion functors (with Fred Rohrer), *Communication in Algebra* **245** (2017), 285–298.
21. Some results on local cohomology of polynomial and formal power series rings: the one dimensional case, *Journal of Algebra*, **466** (2016), 184–194.

22. On the vanishing of local cohomology of the absolute integral closure in positive characteristic, *Journal of Algebra* **456** (2016), 182–189.
  23. Localization at infinitely many prime ideals and applications (with Kamal Bahmanpour), *Journal of Algebra and its Applications* **15** No. 3 (2016), 1650045, 6 pages.
  24. On the index of reducibility in Noetherian modules (with Nguyen Tu Cuong and Hoang Le Truong), *Journal of Pure Applied Algebra* **219** (2015), 4510–4520.
  25. Attached primes of local cohomology modules under localization and completion (with Le Thanh Nhan), *Journal of Algebra* **420** (2014), 475–485.
  26. On the uniform bound of the index of reducible of parameter ideals of a module whose polynomial type is at most one, *Archiv der Mathematik (Basel)* **101** (2013), 469–578.
- (Thesis) Splitting of local cohomology modules and applications, *Thesis* 2013 (Vietnamese).
27. A remark on the finiteness dimension, *Communication in Algebra* **41** (2013), 2048–2054.
  28. Asymptotic behaviour of good systems of parameters of sequentially generalized Cohen-Macaulay modules, *Kodai Mathematical Journal* **35** (2012), 576–588.
  29. A splitting theorem for local cohomology and its applications (with Nguyen Tu Cuong), *Journal of Algebra* **331** (2011), 512–522.
  30. On the finiteness of associated primes of local cohomology modules, *Proceedings of the American Mathematical Society* **138** (2010), 1965–1968.

## Teaching

- Calculus
- Linear Algebra
- Discrete Mathematics
- Combinatorial Optimization

## Advising

- Duong Thi Huong (PhD): 2018-2020 (expected)
- 06 Master Students

## Selected talk

- Algebraic geometry in east asia, Hanoi, Vietnam, 23–26/10/2018.  
Talk: *On the ideal theory of  $F$ -singularities.*
- 9th Vietnam National Congress of Mathematics, Nha Trang, Vietnam, 14–18/08/2018.  
Keynote speaker of the Algebra-Number Theory-Geometry-Topology section.  
Talk: *On the ideal theory of  $F$ -singularities.*
- International Conference On Commutative Algebra and its interaction to Combinatorics, Discrete Geometry and Singularity Theory, Hanoi-Halong, Vietnam, 11–15/09/ 2017.  
Talk: *On the tight closure of parameter ideals in local rings  $F$ -rational on the puncture spectrum.*
- International Conference and 8th Japan-Vietnam joint Seminar on Commutative Algebra, Halong, Vietnam 21–25/03/2016.  
Talk:  *$F$ -injectivity and Frobenius closure of ideals in Noetherian rings of characteristic  $p > 0$*
- International conference on commutative algebra and its interaction to algebraic geometry and combinatorics, Hanoi, 16–20/12/2013.  
Talk: *On the splitting of local cohomology and structure of finitely generated modules in local rings*
- The 7th Japan-Vietnam joint seminar on commutative algebra, Quy Nhon, 12–16/12/2011.  
Talk: *On the index of reducibility of powers of an ideal*
- The 33rd symposium on Commutative Algebra, Nagoya, Japan, 07–10/11/2011.  
Talk: *Some results on the finiteness of local cohomology modules*
- The 5th Japan-Vietnam joint seminar on commutative algebra, Hanoi, 05–09/01/2010.  
Talk: *On the splitting of local cohomology and its applications*

## Service to the profession

Referee: Acta Math. Vietnam\*\*, Archiv. Math., Czech Math. J., Math Z.\*, Comm. Algebra, J. Commutative Algebra, Taiwan J. Math, Vietnam J. Math\*\* (\* = quick option, \*\* = more than two times).

Math Review: Since 2014.