



# Ngô Bảo Châu

The University of Chicago  
Department of Mathematics  
5734 S. University Avenue  
Chicago, IL 60637-1514, USA  
(773) 702-7385  
ngo@uchicago.edu  
<http://math.uchicago.edu/ngo>

## EDUCATION

---

<b>PhD Mathematics</b> <i>Université Paris Sud</i>	1992-1997
<b>BS Mathematics and Computer Sciences</b> <i>ENS Paris, Université Pierre et Maris Curie</i>	1990-1992

## APPOINTMENTS

---

<b>Professor of Mathematics</b> <i>University of Chicago</i>	2010-present
<b>Scientific Director</b> <i>Vietnam Institute for Advanced Study in Mathematics</i>	2011-present
<b>Long-term Member</b> <i>Institute for Advanced Study, Princeton</i>	2007-2010
<b>Professor</b> <i>Université Paris Sud</i>	2004-2007
<b>CNRS Fellow</b> <i>Université Paris Nord</i>	1998-2004

## OUTREACH

---

<b>Cánh cửa mở rộng</b> <i>Edition House Trẻ</i> Book series edited in collaboration with Phan Việt. This book series contain 25 items translated from English and French.	2012-2016
<b>Ai và Ky ở xứ sở của những con số tàng hình</b> <i>Edition House Nhã Nam</i> Math adventure book written in collaboration with Nguyễn Phương Văn, more than 50K copies sold.	2013
<b>Cùng Viết Hiến Pháp</b> <i>Website</i>	2012

Collection of journal papers on the process of amending Vietnam constitution in 2013. Work in collaboration with Đàm Thanh Sơn, Nguyễn Anh Tuấn and Trần Kiên.

**Học Thế Nào** 2013  
*Website*

Collection of papers on education. Work in collaboration with Nguyễn Phương Văn and Lê Quý Hiên.

**Vietnam Education Dialogue** 2014  
*Independent Research Groups on Higher Education*

Members of this independent research group include Đỗ Quốc Anh, Trần Ngọc Anh, Vũ Thành Tự Anh, Phạm Hùng Hiệp, Phạm Ngọc Thắng, Nguyễn Phương Văn. We conduct a bi-weekly seminar on different aspects of Vietnam university system and possibility of reform. We organized a conference on in American center in HCM city. The output of this efforts was a collection of internal documents and the synthetic report *Phương hướng cải cách đại học ở Việt Nam* that has been made public.

**Journal Pi** 2017  
*Mathematical journal for high school and university students*

This journal aims at high standard scientific vulgarization.

## **PROFESSIONAL RECOGNITION**

---

**Foreign Member** 2016

*Académie des Sciences de Paris*

**Member** 2012

*American Academy of Arts and Sciences*

**Fellow** 2012

*American Mathematics Society*

**Honorary Doctor** 2011

*Vietnam National University*

**Fields Medal** 2010

*International Congress of Mathematicians*

**Top 10 Scientific discoveries** 2009

*Time Magazine*

**Oberwolfach Prize** 2007

*Oberwolfach Foundation*

**Sophie Germain Prize** 2007

*Académie des Sciences de Paris*

**Clay Research Award** 2004

*Clay Mathematics Institute*

## **SELECTED LECTURES**

---

**Distinguished Ordway Lectures** 2018

*University of Minnesota*

**Erwin Schrodinger Lectures** 2018

*University of Vienna*

**Takagi Lectures** 2016

<i>Tokyo University</i>	
<b>Oppenheim Lectures</b>	2015
<i>National University of Singapore</i>	
<b>Chern Lectures</b>	2014
<i>University of California at Berkeley</i>	
<b>Leonard da Vinci Lectures</b>	2013
<i>University of Milan</i>	
<b>Fields Medal Symposium Lectures</b>	2012
<i>Fields Institute, Toronto</i>	
<b>Plenary Address</b>	2010
<i>International Congress of Mathematicians in Hyderabad</i>	
<b>Eilenberg Lectures Series</b>	2010
<i>Columbia University</i>	
<b>Hahn Lectures</b>	2009
<i>Yale University</i>	
<b>Sectional Address</b>	2006
<i>International Congress of Mathematicians in Madrid</i>	

## **PUBLICATION**

---

1. Lemme fondamental de Jacquet et Ye en caractéristiques égales, *C. R. Acad. Sci. Paris*, 325 (1997),307-312.
2. Lemme fondamental de Jacquet et Ye en caractéristiques positives, *Duke Math. J.* 96 (1999),473-520.
3. Faisceaux pervers, homomorphisme de changement de base et lemme fondamental de Jacquet et Ye, *Ann. Sci. Ec. Norm. Sup.* 32 (1999),619-679.
4. Preuve d'une conjecture de Frenkel-Gaitsgory-Kazhdan-Vilonen pour les groupes linéaires généraux, *Isr. J. Math.* 120 (2000), 259-270.
5. Résolutions de Demazure affines et formule de Casselman-Shalika géométrique, *J. Alg. Geom.* 10 (2001), no. 3, 515-547, joint work with P. Polo.
6. Nearby cycles for local models of some Shimura varieties, *Compositio Mathematicae* 113 (2002) 117-150, joint work with T. Haines.
7. Alcoves associated to special fibers of local models, to appear in *Amer. Jour. of Math.* 124 (2002) 1125-1152, joint work with T. Haines,
8. Alcoves et  $p$ -rang de variétés abéliennes, *Ann. de l'Institut Fourier*, 52 (2002) 1665-1680. joint work with A. Genestier.
9. D-htoucas modifications multiples et identités de changement de bases, *Annales Sci. de l'ENS* 39 (2006) 197-243.
10. Fibration de Hitchin et endoscopie, *Invent. Math.* 164 (2006) 399-453.
11. Fibration de Hitchin et structure endoscopique de la formule des traces, Proceedings of the ICM Madrid 2006, 1213-1225.

12. Lemme fondamental pour les groupes unitaires, *Annals of Math.* (2) 168 (2008), no. 2, 477–573, joint work with G. Laumon,
13. Comptages des  $G$ -chtoucas, *Journal de l'Institut de Mathématiques de Jussieu* 7 (2008), no. 1, 181–203, joint work with Ngô Đắc Tuấn,
14. Lectures on Shimura varieties. Autour des motifs—École d'été Franco-Asiatique de Géométrie Algébrique et de Théorie des Nombres/Asian-French Summer School on Algebraic Geometry and Number Theory. Volume I, 187–236, Panor. Synthèses, 29, Soc. Math. France, Paris, 2009.
15. Survey on the fundamental lemma. Current developments in mathematics, 2009, 1–21, Int. Press, Somerville, MA, 2010.
16. Le lemme fondamental pour les algèbres de Lie. Publ. Math. Inst. Hautes Études Sci. No. 111 (2010), 1–169.
17. Endoscopy theory of automorphic forms. Proceedings of the International Congress of Mathematicians. Volume I, 210–237, Hindustan Book Agency, New Delhi, 2010.
18. Formule des traces et functorialité : le début d'un programme. Ann. Sci. Math. Québec 34 (2010), no. 2, 199–243, joint work with E. Frenkel et R. Langlands
19. Gemetrization of the trace formula. Bull. Math. Sci. 1 (2011), no. 1, 129–199, joint work with E. Frenkel.
20. Decomposition theorem and abelian fibration. in book On the stabilization of the trace formula, 253–264, Stab. Trace Formula Shimura Var. Arith. Appl., 1, Int. Press, Somerville, MA, 2011.
21. On a certain sum of automorphic L-functions. Automorphic forms and related geometry: assessing the legacy of I. I. Piatetski-Shapiro, 337–343, Contemp. Math., 614, Amer. Math. Soc., Providence, RI, 2014
22. Kloosterman sheaves on reductive groups, Ann. of Math. (2) 177 (2013), no. 1, 241–310, joint work with J. Heinloth et Z. Yun.
23. Average size of 2-Selmer groups of elliptic curves over function fields, Math. Res. Lett. 21 (2014), no. 6, 1305–1339. joint work with Q.P. Ho et H.V.B. Le
24. Fundamental lemma and perverse sheaves, to be published in the Proceedings of the Park City Mathematics Institute 2015
25. On the formal arc space of a reductive monoid, Amer. J. Math. 138 (2016), no. 1, 81–108, joint work with A. Bouthier et Y. Sakellaridis
26. On a conjecture of Braverman and Kazhdan, International Research Mathematics Notices (2017), joint work with S. Cheng
27. Weierstrass preparation theorem and singularities in the space of non-degenerate arcs, to be published in Acta Mathematica Vietnamica
28. On the Hitchin fibration for algebraic surfaces, joint work with T.H. Chen, preprint 2017
29. Hankel transform, Langlands functoriality and functional equation of automorphic  $L$ -functions, preprint 2017

## PHD STUDENTS

---

<b>Alexis Bouthier</b> <i>Université Paris-Sud</i> La fibration de Hitchin-Frenkel-Ngo et son complexe d'intersection.. Bouthier is currently an Assistant Professor in Université Pierre et Marie Curie.	2014
<b>Shuyang Cheng</b> <i>University of Chicago</i> A Global Trace Formula for Reductive Lie Algebras and the Harish-Chandra Transform on the Space of Characteristic Polynomials. S. Cheng is now a postdoctoral fellow in the University of Michigan.	2016
<b>Hồ Phú Quốc</b> <i>University of Chicago</i> Free factorization algebras and homology of configuration spaces in algebraic geometry. Q. Ho is currently a postdoctoral fellow in IST Vienna.	2017
<b>Daniel Johnstone</b> <i>University of Chicago</i> A Gelfand-Graev formula and stable transfer factor for $SL_n(F)$ . D. Johnstone is currently a Postdoctoral fellow in the University of Minnesota.	2017
<b>Jingren Chi</b> <i>University of Chicago</i>	current
<b>Phạm Ngọc Hoàng Minh</b> <i>University of Chicago</i>	current
<b>Trịnh Minh Tâm</b> <i>University of Chicago</i>	current
<b>Xiao Wang</b> <i>University of Chicago</i>	current

## POSTDOCTORAL ASVISEE

---

<b>Zhiwei Yun</b> <i>Institute for Advanced Study, Princeton</i> Professor at Yale University	2009
<b>Jayce Getz</b> <i>Institute for Advanced Study, Princeton</i> Assistant Professor at Duke University	2009
<b>Sandeep Verma</b> <i>University of Chicago</i> Faculty at the Tata Institute for Fundamental Research	2010-2012
<b>Paul Herman</b> <i>University of Chicago</i> Currently working in industry	2012-2015
<b>Lê Hùng Việt Bảo</b> <i>University of Chicago</i> Assistant Professor in Northwestern University	2014-2016

## **EDITORIAL RESPONSIBILITY**

---

- Mathematisch Zeitschrift (past)
- Inventiones Mathematicae (past)
- Compositio Mathematica
- Grundlehren der mathematischen Wissenschaften
- Acta Mathematica Vietnamica
- Vietnam Journal of Mathematics