JAMES MAYNARD

Address: Mathematical Institute, Oxford, OX2 6GG, England
Email: james.maynard@maths.ox.ac.uk
Date of birth: 10 June 1987
Nationality: British (UK citizen)

RESEARCH INTERESTS

Analytic number theory, particularly sieve methods and prime numbers.

EMPLOYMENT

2018-:	**Professor of Number Theory**, University of Oxford 'Title IV Professorship', equivalent of UK chair/US full professor
Fall 2017:	**Member**, Institute for Advanced Study, Princeton
Spring 2017:	**Research Member**, MSRI, Berkeley
2015-2018:	**Clay Research Fellowship**, Clay Mathematics Institute
2013-2017:	**Fellow by Examination**, Magdalen College, Oxford On leave of absence 2013-14
2013-2014:	**CRM-ISM Post-doctoral Fellow**, Université de Montréal
Summers 2008-12:	**Summer Consultant**, GCHQ Heilbronn Institute and GCHQ Cheltenham

EDUCATION

2009-2013:	**DPhil in Mathematics,** Balliol College, Oxford *'Topics in analytic number theory'*, supervised by Prof. Heath-Brown
2008-2009:	**'Part III' Mathematics,** Queens' College, Cambridge Distinction
2005-2008:	**BA Mathematics,** Queens' College, Cambridge First Class in each year

AWARDS AND HONOURS

2022:	**Fields Medal**, International Mathematical Union
2020:	Elected member of **Academia Europaea**
2020:	**Cole Prize in Number Theory**, American Mathematical Society
2019:	**Compositio Prize**, Foundation Compositio Mathematica
2018:	**ICM invited speaker**, Rio de Janeiro, Brazil
2017:	**Wolfson Merit Award**, Royal Society
2016:	**EMS Prize**, European Mathematical Society
2016:	**Erdős \$10 000 problem prize** (joint with K. Ford, B. Green, S. Konyagin and T. Tao)
2015:	**Whitehead prize**, London Mathematical Society
2014:	**Ramanujan prize**, SASTRA University
2014:	Featured in **Bourbaki Séminaire 1084** given by Prof. Kowalski
2014:	Featured in **AMS Current events bulletin** given by Prof. Granville

GRANTS AND FUNDING

RESEARCH PUBLICATIONS

Selected publications:

1. *Small gaps between primes*
   Ann. of Math. (2) 181 (2015), no. 1, 383–413.

2. *Large gaps between primes*
   Ann. of Math. (2) 183 (2016), no. 3, 915–933.

3. *Long gaps between consecutive primes* (with K. Ford, B. Green, S. Konyagin and T. Tao)
   J. Amer. Math. Soc. 31 (2018), no. 1, 65–105.

4. *Primes with restricted digits*
   Invent. Math. 217 (2019), no. 1, 127–218.

5. *Primes represented by incomplete norm forms*
   Forum Math. Pi 8 (2020), e3.

6. *On the Duffin-Schaeffer Conjecture* (with D. Koukoulopoulos)
   Ann. of Math (2) 192 (2020), no. 1, 251–307.

7. *Primes in arithmetic progressions to large moduli I: Fixed residue classes*
   Mem. Amer. Math. Soc. *to appear.*

8. *Primes in arithmetic progressions to large moduli II: Well-factorable estimates*
   Mem. Amer. Math. Soc. *to appear.*

9. *Primes in arithmetic progressions to large moduli III: Uniform residue classes*
   Mem. Amer. Math. Soc. *to appear.*

10. *Simultaneous small fractional parts of polynomials*
    Geom. Funct. Anal. 31 (2021), no. 1, 150–179.

Journal articles:

11. *On the Brun-Titchmarsh theorem*
    Acta Arith. 157 (2013), no. 3, 249-296.

12. *Almost-prime k-tuples*
    Mathematika 60 (2014), no. 1, 108-138.

13. *Bounded length intervals containing two primes and an almost-prime*
    Bull. Lond. Math. Soc. 45 (2013), no. 4, 753-764.

14. *3-Tuples have at most 7 prime factors infinitely often*
    Math. Proc. Cambridge Philos. Soc. 155 (2013), no. 3, 443-457.

15. *Bounded length intervals containing two primes and an almost-prime II*
    J. Number Theory 154 (2015), no. 4, 1-15.

16. *Variants of the Selberg sieve, and bounded intervals with many primes* (joint under pseudonym Polymath, D.H.J.)
    Res. Math. Sci., 1 (2014), 12, 83pp.

17. *Sums of two squares in short intervals*
    Analytic Number Theory, Springer (2015), 253-273.

18. *Dense clusters of primes in subsets*
    Compositio Math. 152 (2016), no. 7, 1517-1554.

19. *On limit points of the sequence of normalized prime gaps* (with W. Banks and T. Freiberg)
    Proc. Lond. Math. Soc. 113 (2016), no. 4, 419-539.

20. *Chains of large gaps between primes* (with K. Ford and T. Tao)
    Irregularities in the Distribution of Prime Numbers, Springer (2016), 1–21.

21. *Vinogradov's theorem with almost equal summands* (with K. Matomaki and X. Shao)
    Proc. Lond. Math. Soc. 115 (2017), no. 2, 323-347.

Journal articles:	22. *Sieves and Primes*
(continued)	Analytic number theory and Representation Theory, Science Press (2017) China.

23. *Digits of primes*
Proc. of the 7th European Congress of Mathematics, (2018) 641-661.

24. *Gaps between primes*
Proc. of the 2018 International Congress of Mathematics, (2018) Vol. II, 345-361.

25. *Sign changes of Kloosterman sums and exceptional characters* (joint with S. Drappeau)
Proc. Amer. Math. Soc. 147 (2019) , no. 1, 61–75.

26. *On the Twin Prime Conjecture*
Jpn. J. Math. 14 (2019) no. 2, 175–206.

27. *Long gaps in sieved sets* (with K. Ford, S. Konyagin, C. Pomerance and T. Tao)
J. Eur. Math. Soc. 23 (2021), no. 2, 667-700.

28. *Sieve weights and their smoothings* (with A. Granville and D. Koukoulopoulos)
Ann. Sci. Ec. Norm. Supér. 54 (2021), no. 5, 1089-1177.

29. *A lower bound on the LCM of polynomail sequences* (with Z. Rudnick)
Rev. Mat. univ. Parma. Vol. 12 (2021), 143–150.

30. *Primes and polynomials with restricted digits*
Int. Math. Res. Not. IMRN *to appear*.

31. *Metric theory of Weyl sums* (joint with C.Chen, B. Kerr and I. Shparlinski)
Mathematische Annalen *to appear*.

32. *A new upper bound for sets with no square differences* (with T. Bloom)
Compositio Mathematica *to appear*.

33. *Longer gaps between values of binary quadratic forms* (with R. Dietmann, C. Elsholtz, A. Kalmynin, S. Konyagin)
Int. Math. Res. Not. IMRN *to appear*.

INVITED TALKS

I have given over 150 talks in 20 different countries. These have included general interest talks to the public and high schools, conference talks, university seminars, lecture series, colloquia and special/named lectures. Below is a list of major invited talks.

Named lectures	LMS Popular Lectures, June 2021
and lecture series:	Minerva Lectures, Princeton University, April 2021
	Georges de Rham lecture, U Geneva & EPFL, September 2020
	MINT Distinguished Lectures, Tel Aviv, December 2018
	Takagi Lectures, Tokyo, November 2018
	Invited lecture, ICM 2018, Rio de Janeiro, August 2018
	AMS Erdős memorial lecture, CUNY, May 2017
	Prize lecture, European congress of mathematics, July 2016
	Beeger lecture, Benelux mathematical congress, March 2016
	Ramanujan colloquium and lectures, University of Florida, March 2016
	MRC Distinguished lecture series, Stanford University, January 2016
	Ramanujan commemoration lecture, SASTRA University, December 2014
	Joram seminar lecture series, Jerusalem, April 2014
Plenary talks	UCL (2021), Stony Brook (2020), Bristol (2019), HKU (2019),
and colloquia:	Université Lorraine (2019), Durham (2018), UQAM (2018),
	UIUC (2017), Cardiff (2016), Sheffield (2016), LSE (2016),
	Caltech (2016), Journées Arithmétiques (2015), P.A.N.T.S. XXIII (2014),
	Rolf Shock Symposium (2014), CNTA (2014), CMS meeting (2014)
	MIT (2014), Montreal (2014), York (2014), Princeton (2014), Stanford (2013)

TEACHING EXPERIENCE

Summer school courses:	2021 SSANT, Paris
	2020 SFB Online seminar series, Austria
	2019 Duffin-Schaeffer winter school, University of Bristol
	2015 Analytic number theory summer school, MSRI Berkeley
	2015 Special semester in number theory, Morningside center of mathematics, Beijing
	2014 LMS-CMI Bounded gaps between primes summer school, University of Oxford
Lecturer:	*'Analytic Number Theory'* 2018, 2019, 2020
	'Linear Algebra II' 2019, 2020
	'Calculus of variations' 2019, 2020
Tutorial Tutor:	*'Differential Equations'* 2010, *'Probability'* 2010, *'Number Theory'* 2015
Class Tutor:	*'Analytic Number Theory'* 2011 and 2012, *'Elliptic Curves'* 2011 and 2012
Teaching Assistant:	*'Analytic Number Theory'* 2009, *'Elliptic Curves'* 2010

SUPERVISION

Undergraduate and Masters:	James Lau, Oxford, Summer 2015, LMS undergraduate research experience grant.
	Hazem Hassan, Summer 2018
	Cedric Pilatte, Summer 2022, ENS masters dissertation
Graduate:	Oliver McGrath, 2018+
	Jared Lichtman, 2019+
	Julia Stadlmann, 2020+
	Alexandru Pascadi, 2021+
	Cedric Pilatte, 2022+

PROFESSIONAL DUTIES

Editorial work:	Managing editor, Journal of the LMS (2019-)
Referee and Review work:	Referee and quick opinions for 50+ papers, including *Annals*, *Acta Math*, *JAMS*, *Pub. IHES*, *Duke* etc. Reviewer for *Mathematical Reviews*® database
	Reviewer for grant applications (Hausdorff Research Institute, NDRI Office Hungary, National Science Center Poland)
	Internal and external Assessor for PhD vivas
Outreach and popular media:	Written articles in *EMS Newsletter* , `serious-science.org` and *Notices of the AMS*
	Featured in film *Counting from infinity*
	Featured in multiple videos for *Numberphile* (over 1 million views)
	Over 20 popular press articles on work including *Quanta Magazine*, *Der Spiegel*, *Kyodo News*, *Volkskrant*, *Amna*, *Scientific American* etc.
	Outreach talks at high schools and PROMYS Europe for high school students
	Work mentioned in US Congress, collaborator called by Greek president.