

MAGIC Annual Report

July 2014 – June 2015

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1 Introduction

The MAGIC (Mathematics Access Grid Instruction and Collaboration) project commenced, with EPSRC sponsorship, in October 2006. It is aimed at sharing postgraduate lectures in mathematics for PhD students using Access-Grid technology. The consortium currently has 20 universities as partners with

both small and large departments being fully involved in the delivery of the programme of lectures in addition to their students being able to fully participate in the lectures.

Earlier annual reports on MAGIC can be found at http://www.maths-magic.ac.uk/annual_reports These give extensive detail on how the project has developed over the years and contain information on the suite of courses which MAGIC has delivered and some of the technical and other issues that MAGIC has encountered.

The current MAGIC website <http://www.maths-magic.ac.uk> contains last year's annual report, details of the current programme and the courses available.

1.1 Membership

Table 1: A list of MAGIC Consortium partners

University of Birmingham	Loughborough University
Durham University	University of Manchester
University of Cardiff	University of Newcastle
University of East Anglia	University of Northumbria
University of Exeter	University of Nottingham
Keele University	University of Reading
University of Lancaster	University of Sheffield
University of Leeds	University of Southampton
University of Leicester	University of Surrey
University of Liverpool	University of York

1.2 MAGIC Management Committee (2014-2015)

Table 2: MAGIC Management Committee

Prof. Peter Ashwin (Exeter University)	Director of MAGIC
Dr Ian McIntosh (University of York)	Programme Committee Chair
Dr Kevin Houston (Leeds University)	
Dr Giampaolo D'Alessandro (Southampton University)	
Prof. Tim Phillips (Cardiff University)	
Stuart Phillipson (Manchester University)	
Prof. Toby Stafford (Manchester University)	Deputy Director of MAGIC
Prof. Neil Strickland (Sheffield University)	
James Perrin	MAGIC Technical Officer
Sam Blackburn	MAGIC Administrator

1.3 MAGIC Programme Committee (2014-2015)

Table 3: Programme Committee

Dr Ian McIntosh (University of York)	Programme Committee Chair
Prof. Pete Ashwin (Exeter University)	Ex Officio
Prof. Alexey Bolsinov (Loughborough University)	
Dr Gianne Derks (University of Surrey)	
Dr Tobias Kuna (University of Reading)	

Prof. Christopher Parker (University of Birmingham)
Prof. Tim Phillips (Cardiff University)
Prof. Mary Rees (University of Liverpool)

1.4 MAGIC Academic Steering Committee (2014-2015)

Table 4: A list of members of the Academic Steering Committee

Prof. Nigel Peake	Chair of Academic Steering Committee
Prof. Peter Ashwin (Exeter University)	Director of MAGIC
Dr Ian McIntosh (University of York)	Programme Committee Chair
Dr David Aspero (University of East Anglia)	
Dr Alexey Bolsinov (Loughborough University)	
Dr Giampaolo D'Alessandro (Southampton University)	
Dr Gianne Derks (University of Surrey)	
Prof. Yibin Fu (Keele University)	
Dr Kevin Houston (University of Leeds)	
Prof. Peter Jorgensen (Newcastle University)	
Dr Tobias Kuna (University of Reading)	
Prof. Martin Lindsay (Lancaster University)	
Dr Sara Lombardo (University of Northumbria)	
Prof. Christopher Parker (University of Birmingham)	
Prof. Sergei Petrovskii (University of Leicester)	
Prof. Tim Phillips (Cardiff University)	
Prof. Mary Rees (University of Liverpool)	
Dr Dirk Scheutz (Durham University)	
Prof. Toby Stafford (University of Manchester)	
Prof. Neil Strickland (University of Sheffield)	
Prof. Richard Tew (University of Nottingham)	

1.5 Minutes

The minutes of the meetings of the MAGIC MC, PC and ASC, together with the agenda papers can be found at: https://maths-magic.ac.uk/admin/management/list_meetings.php

2 Progress and activities 2014-2015

2.1 MAGIC Administrator and Technical Support Posts

The MAGIC Administrator (0.5FTE) role was taken over by Sam Blackburn from Julie Thompson in January 2015. Technical support is provided by the MAGIC Technical Support person (0.4FTE) James Perrin. James is employed at the University of Manchester and Sam at the University of Exeter. Giampaolo D'Alessandro (Southampton) served as Director until December 2015, and Peter Ashwin (Exeter) took over the role of Director of MAGIC from January 2015.

2.2 Video Conferencing Software/Hardware Update

MAGIC's video conferencing platform has been using VISIMEET for the past few years, and this has included a more robust and flexible service. We have a maintenance agreement with Taalus that goes until March 2016. We plan for a major upgrade of equipment during 2015-16.

2.3 Website

The MAGIC website is continuously updated in response to requirements from users and administrators. e.g. tools for the Programme Committee to view how courses have performed over the years, and managing questionnaires. Security and mobile friendliness have been also improved.

2.4 Recording of lectures

We have made recordings of lectures available via VISIMEET for the academic year 2014-15 and hope to have a fully operation web-based recordings available for 2015-16; a significant amount of development work has gone into this and the completed system will be fully automatic.

2.5 Other activities and use of the MAGIC facilities

We had a MAGIC Career Fair on 12th Jan 2015 – this attracted a few students but unfortunately only one presenter (from ATASS sport) was able to give a talk about postgraduate opportunities. There was good feedback from students who attended.

MAGIC supported the Birmingham Young Mathematician Colloquium conference organised by postgraduate students at the University of Birmingham on 13th May 2015. The conference was well attended with around 70 participants. MAGIC provided some financial support to students from other MAGIC nodes to travel to the conference.

2.6 Technical problems and issues

The MAGIC website only suffered one period of significant disruption when the web certificate expired over New Year, though the website was still available after approving the security exceptions. Lectures were disrupted on 7 Oct 14 when the Janet network for Yorkshire and Humberside suffered a major failure.

3 Academic Aspects 2014-2015

3.1 Academic Programme 2014-2015

The list of courses given in the 2014-15 sessions (and also for previous sessions) can be viewed at the MAGIC website at <http://maths-magic.ac.uk/courses.php> . The above site also gives details of the individual courses and syllabi.

Details of course history and payments for course development have been added to the MAGIC website and can be viewed at https://maths-magic.ac.uk/admin/programme/course_histories.php

3.2 Questionnaires and feedback

The results of the questionnaire data can be viewed at (login required):
https://maths-magic.ac.uk/admin/programme/view_questionnaires.php

An alumni questionnaire was issued in early May 2015 to students who registered for MAGIC courses in 2012-13. This aimed to get responses from students who had completed their MAGIC training but who were mostly (19/22) in the final stages of their PhD. Most of the responders (15/22) said the training from MAGIC has been helpful. Most of the responders (16/22) would recommend MAGIC to someone who is just starting their PhD.

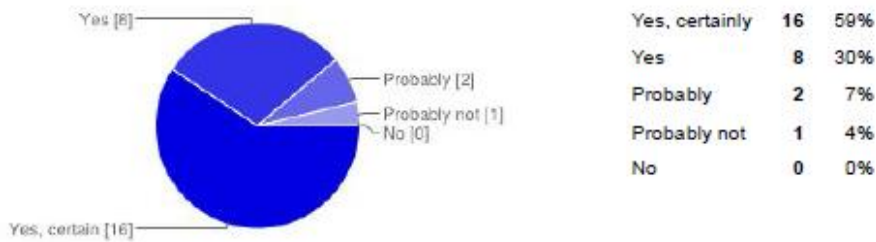
Feedback from the lecturers on all the courses has been obtained via online course reports and the responses are available for viewing at the same site (cited earlier) along with other questionnaire results. The feedback from students and staff (via the questionnaire results, forums discussions) is used by the Programme Committee when it reviews the programme each year. The minutes of the Programme Committee contain some of the feedback and summarize the outcomes from the review.

In addition, the Management committee undertook a questionnaire of staff involved in MAGIC (department heads, lecturers and node reps) in late January and early February 2015. As a result of this we have proposed a short description of the Role of a Node Representative:

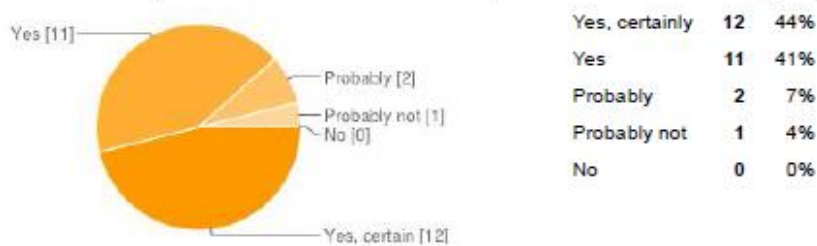
<https://maths-magic.ac.uk/admin/documentation/NodeRepresentativeRole.pdf>

The questionnaire supported continuation of MAGIC (see below) in a similar form to the current, i.e. a consortium based on live shared lectures, using VISIMEET. As a result of this we are suggesting a renewal of MAGIC on similar lines to the current consortium agreement.

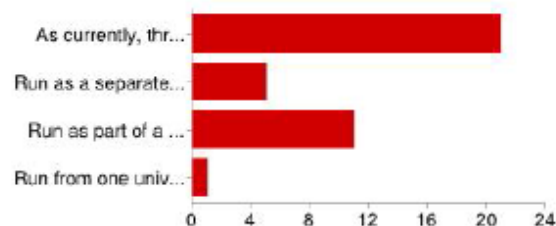
Do you believe that MAGIC provides a useful service for training mathematics PhD students at your university department/unit?



Do you believe that you will wish to continue using MAGIC for PhD training beyond 2016.



Which of the following options do you think would be most suitable for future coordination of MAGIC?



As currently, through a consortium agreement co-ordinated through one university	21	78%
Run as a separate organization (eg non-profit company)	5	19%
Run as part of a learned/professional society	11	41%
Run from one university, with the others as subscribers.	1	4%

3.3 Assessment Policies

The current MAGIC Course Assessment Policy may be found on the current MAGIC website here: https://maths-magic.ac.uk/admin/documentation/documentation_index.php

The current policy requires that each MAGIC course will have a single open-book style examination/assessment at the end of the module, and this will be done over a two week period after the end of the course. Lecturers are required to produce a pass/fail mark for each student requiring assessment, and to give feedback on the assessment via the MAGIC website.

A payment of £10 is made to lecturers for each pass/fail assessment of student recorded on the MAGIC website.

3.4 Course preparation and refreshment payments

The arrangements for this year has been the same as last, namely, after previous system payment for payment in advance for multiple years has expired, the institution responsible for delivering a course is paid according to the following table:

Course type	One-off payment	1 st year	1 st year total	2 nd year	3 rd year	Total over 3 years
New 20 hour	£1200	£400	£1600	£400	£400	£2400
New 10 hour	£600	£200	£800	£200	£200	£1200
New lecturer 20 hour	£600	£400	£1000	£400	£400	£1800
New lecturer 10 hour	£300	£200	£500	£200	£200	£900

3.5 Registration data

The *Table 5* below shows the number of students registered for courses together with the number requiring formal assessment. The corresponding figures for previous years are also displayed in the same table. (It is noted that formal assessment for all courses started with the 2011-12 session). *Table 6* shows the same data but broken down via MAGIC partner.

Table 5: *Total number of course registrations and numbers of students requiring formal assessment. The number of students in the third row is the number of people who registered for at least one course in that session and excludes those names added to the database but not signing up courses.*

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Registrations (assessed)		649	764	562 (283=50%)	646 (434=67%)	719 (470=65%)	830 (551=66%)
No. of Students	221	236	246	214	256	285	300

Table 6: Same data as in Table 5 but broken down by institution. Student numbers is a count of the numbers of students on the database in the particular session who registered for at least one course.

	2011-12		2012-13		2013-14		2014-15	
	No. of Students	Registered	No. of Students	Registered	No. of Students	Registered	No. of Students	Registered
External	0	0	1	6	1	1	3	38
Birmingham	21	57	23	54	17	41	11	23
Cardiff	6	19	7	27	11	26	15	50
Durham	6	22	6	25	7	17	8	24
East Anglia	17	31	13	34	17	60	18	43
Exeter	9	24	13	33	15	44	15	34
Keele	3	6	1	2	0	0	4	6
Lancaster	2	3	3	14	6	29	9	35
Leeds	28	52	33	64	41	108	41	107
Leicester	2	2	12	24	8	15	19	47
Liverpool	26	46	25	45	30	67	34	80
Loughborough	24	82	21	65	13	31	17	59
Manchester	17	55	33	102	26	54	14	38
Newcastle	9	25	10	21	10	19	15	31
Northumbria					7	14	3	6
Nottingham	7	14	9	16	19	32	11	17
Reading	4	6	4	6	3	6	3	4
Sheffield	6	23	15	31	15	43	19	39
Southampton	14	38	14	36	17	57	18	82
Surrey	3	14	4	13	8	21	12	29
York	10	43	9	28	14	34	11	38
Total	214	562	256	646	285	719	300	830

In *Tables 7, 8* we show assessment data for each course broken down by course. In *Tables 9, 10* we show registration data for each node and broken down by course. *Table 11* shows a summary of the data for the last few years.

Table 7: Autumn 2014-2015 Courses with numbers of registered students and number of students being assessed.

	Course	Registered	Assessed
MAGIC002	Differential topology and Morse theory (Dirk Schuetz - Durham)	11	9 (81.82%)
MAGIC008	Lie groups and Lie algebras (Alexey Bolsinov - Loughborough)	41	35 (85.37%)
MAGIC022	Mathematical Methods (Jitesh Gajjar - Manchester)	54	34 (62.96%)
MAGIC050	Set Theory (David Aspero - UEA)	24	14 (58.33%)
MAGIC059	Dynamical Systems I (Flows) (Jan Sieber - Exeter)	22	15 (68.18%)
MAGIC060	Dynamical Systems II (Maps) (Toby Hall - Liverpool)	18	14 (77.78%)
MAGIC061	Functional Analysis (Martin Lindsay - Lancaster)	21	16 (76.19%)
MAGIC063	Differentiable Manifolds (Kostas Skenderis - Southampton)	36	26 (72.22%)
MAGIC066	Numerical Analysis (Agis Athanassoulis - Leicester)	45	31 (68.89%)
MAGIC067	Integrable Systems (Alexander Veselov – Loughborough)	23	13 (56.52%)
MAGIC071	Erlangen program in geometry and analysis: $SL(2, \mathbb{R})$ case study (Vladimir V. Kisil - Leeds)	11	9 (81.82%)
MAGIC073	Commutative Algebra (Neil Strickland - Sheffield)	35	23 (65.71%)
MAGIC080	Geometric Mechanics (Cesare Tronci - Surrey)	12	6 (50.00%)
MAGIC081	String Theory (Thomas Mohaupt - Liverpool)	20	12 (60.00%)
MAGIC086	Turing Computability and Beyond (Barry Cooper – Leeds)	32	23 (71.88%)
Total		405	280 (69.14%)

Table 8: Spring 2014-2015 courses showing numbers registered and numbers of students being assessed.

	Course	Registered	Assessed
MAGIC009	Category Theory (Nicola Gambino, Leeds)	56	33 (58.93%)
MAGIC010	Ergodic Theory (Charles Walkden, Manchester)	16	7 (43.75%)
MAGIC014	Hydrodynamic Stability Theory (Jonathan Healey, Keele)	25	16 (64.00%)
MAGIC021	Nonlinear Waves (Roger Grimshaw, Loughborough)	36	28 (77.78%)
MAGIC028	Geometric Structures on surfaces and Teichmuller Space (Mary Rees, Liverpool)	18	15 (83.33%)
MAGIC040	Operator Algebras (Michael Dritschel, Newcastle)	15	11 (73.33%)
MAGIC043	Banach spaces and their operators (Niels Laustsen, Lancaster)	20	12 (60.00%)
MAGIC044	Complex Differential Geometry (Derek Harland, Leeds)	18	11 (61.11%)
MAGIC049	Modular Forms ((Athanasios Bouganis, Durham)	8	3 (37.50%)
MAGIC058	Theory of Partial Differential Equations ((David Harris, Manchester)	34	22 (64.71%)
MAGIC062	Introductory Functional Analysis (John Pryce, Cardiff)	31	23 (74.19%)
MAGIC064	Algebraic Topology (Frank Neumann, Leicester)	29	21 (72.41%)
MAGIC069	Introduction to Quantum Information (Roger Colbeck, York)	18	12 (66.67%)
MAGIC072	Number Theory (Jayanta Manoharmayum, Sheffield)	10	4 (40.00%)
MAGIC074	Algebraic Geometry (Michael Bate, York)	31	18 (58.06%)
MAGIC075	Representation Theory of Groups (Kay Magaard, Birmingham)	30	21 (70.00%)
MAGIC079	Inverse Problems (Daniel Lesnic, Leeds)	14	8 (57.14%)
MAGIC085	Metric Number Theory (Sanju Velani, York)	16	8 (50.00%)
Total		425	273 (64.24%)

Table 9: Data for autumn 2014-2015 courses showing registration data broken down by node and course code. Note that in the 'Autumn Course code' row, the number in bold refers to a MAGIC course code, e.g. 061 is MAGIC061.

	022	088	022	050	059	060	061	063	066	067	071	073	080	081	086	Node Totals
*External	1	2	2	1	1	1	1	2	2	1	1	1	1	2	1	20
*Ext_Assessed																0
Birmingham		1	1	2		1			1			3			2	11
Cardiff		4	4	1	3	1	1	3	3	1		1	3		1	26
Durham	1	2						1	1	1	3	2			1	12
East Anglia		1	5	1	1				3			1			2	14
Exeter	1	1	3		3	1			3			2			1	15
Keele			4													4
Lancaster		2		3	1		5	2				1		1		15
Leeds	2	8		5		2	2	4	1	5	3	5	2	2	9	50
Leicester		3	5	2	2	3		3	3			1			1	23
Liverpool	1		6	2	2	4	2	1	9	1		1	1	5	2	37
Loughborough		2	7		5	2	4	3	7	6	2					38
Manchester	1	1	2	1	1		3	3	2	2		2	1			19
Newcastle		2			1			2	3			3			2	13
Northumbria			1						1	1						3
Nottingham		1	1	2	1			1				1		1		8
Reading			1													1
Sheffield		3	4	2				1		1	1	2		2	1	17
Southampton	4	5	6		1		1	5	3	2		5	4	3	6	45
Surrey			2				1	2	3		1	2		1	1	13
York		3		2		3	1	3		2		2		3	2	21
Autumn course code:	022	088	022	050	059	060	061	063	066	067	071	073	080	081	086	
Course Totals	11	41	54	24	22	18	21	36	45	23	11	35	12	20	32	405

Table 10: Data for spring 2014-2015 showing registration data broken down by node and course code

	009	010	014	021	028	040	043	044	049	058	062	064	069	072	074	075	079	085	Node Totals
*External	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18
*Ext_Assessed																			0
Birmingham	2		3				1			1		1			2	2			12
Cardiff		3	4	1		1	1			3	3		1	1	1	1	2	2	24
Durham	1	1	1		4			1				1			1			2	12
East Anglia	2	2	6	3		1	1			1	1	6	2		1	2		1	29
Exeter	2	1	1	1	1					3	3			2	1	1	1	2	19
Keele				2															2
Lancaster	4					4	7				3		2						20
Leeds	15	1	2	3	1	2	3	2	1		2	6	2	1	4	6	5	1	57
Leicester	5	1	2		1		1	1		1	6	3				3			24
Liverpool	6	1	1	6	2			1	1	6	6	4	2	2	2	1	1	1	43
Loughborough		1		3	3	1	1	2	1	6						2		1	21
Manchester	3		1	3	1			1			2			1	3	1	3		19
Newcastle	1	1				2	1			1	1	2	2		2	5			18
Northumbria			2	1															3
Nottingham	1						2			2		1	3						9
Reading						1	1											1	3
Sheffield	4		1	3				1	3	1				2	5	2			22
Southampton	6				3			5	1	4	3	3	2		7	2		1	37
Surrey				8	1			3		3			1						16
York	3	3		1		2				1		1			1	1	1	3	17
Spring course code	009	010	014	021	028	040	043	044	049	058	062	064	069	072	074	075	079	085	
Course Totals	56	16	25	36	18	15	20	18	8	34	31	29	18	10	31	30	14	16	425

Table 11: Summary of registration data per node.

	2009-10			2010-11			2011-12			2012-13			2013-14			2014-15		
	Autumn	Spring	Total	Autumn	Spring	Total	Autumn	Spring	Total	Autumn	Spring	Total	Autumn	Spring	Total	Autumn	Spring	Total
External										3	3	6	0	1	1	20	18	38
Birmingham	42	19	61	22	22	44	28	29	57	28	26	54	22	19	41	11	12	23
Cardiff	18	13	31	17	11	28	11	8	19	13	14	27	17	9	26	26	24	50
Durham	19	29	48	14	9	23	8	14	22	16	9	25	13	4	17	12	12	24
East Anglia	15	13	28	27	18	45	16	15	31	22	12	34	28	32	60	14	29	43
Exeter	19	17	36	38	20	58	12	12	24	11	22	33	20	24	44	15	19	34
Keele	5	1	6	3	0	3	2	4	6	1	1	2	0	0	0	4	2	6
Lancaster	5	1	6	23	14	37	2	1	3	8	6	14	16	13	29	15	20	35
Leeds	22	55	77	29	25	54	28	24	52	33	31	64	50	58	108	50	57	107
Leicester	4	2	6	8	6	14	2	0	2	15	9	24	6	9	15	23	24	47
Liverpool	16	10	26	15	10	25	22	24	46	22	23	45	39	28	67	37	43	80
Loughborough	40	43	83	60	61	121	51	31	82	35	30	65	21	10	31	38	21	59
Manchester	67	41	108	73	81	154	29	26	55	51	51	102	28	26	54	19	19	38
Newcastle	8	21	29	20	16	36	17	8	25	13	8	21	10	9	19	13	18	31
Northumbria													8	6	14	3	3	6
Nottingham	22	5	27	2	5	7	7	7	14	11	5	16	15	17	32	8	9	17
Reading	5	4	9	9	2	11	5	1	6	5	1	6	2	4	6	1	3	4
Sheffield	11	6	17	26	11	37	10	13	23	19	12	31	21	22	43	17	22	39
Southampton	8	10	18	20	11	31	18	20	38	22	14	36	29	28	57	45	37	82
Surrey	2	1	3	12	0	12	6	8	14	8	5	13	16	5	21	13	16	29
York	23	7	30	12	12	24	23	20	43	18	10	28	21	13	34	21	17	38
Total	351	298	649	430	334	764	297	265	562	354	292	646	382	337	719	405	425	830