

# **Introductory Workshop: Geometric Group Theory**

August 22, 2016 - August 26, 2016

MSRI, Berkeley, CA, USA

Organizers:

**Martin Bridson (University of Oxford)**

**Benson Farb (University of Chicago)**

**Zlil Sela (Hebrew University)**

**Karen Vogtmann (University of Warwick)**

## A SUMMARY REPORT FOR THE INTRODUCTORY WORKSHOP 8/22-8/26.

The introductory workshop, together with the introductory Connections for Women workshop that took place the previous week, opened the Geometric Group Theory program at MSRI. It contained survey talks during the mornings on active branches of the subject, given in general by senior mathematicians, and talks on “hot” new directions and results that were presented by younger mathematicians during the afternoons.

The conference started with two talks by Mladen Bestvina and Koji Fujiwara on recent developments in the study of surface mapping class groups and outer automorphism groups of free groups. These were major focuses of activity throughout the semester. The first day continued with talks by Camille Horbez and Spencer Dowdall on their own work in these directions.

The second day opened with a talk by Ruth Charney on  $CAT(0)$  geometry and her study of the Morse boundary, and continued with Jason Manning’s talk on cube complexes and the work of Ian Agol and Dani Wise on special cube complexes and the strategy of the proof of the virtual Haken conjecture. The second day continued with talks of Sam Taylor and Dennis Osin about counting problems and generalized forms of hyperbolicity. These topics were also actively pursued throughout the semester, with two of the working seminars focusing on this area.

The third day consisted only of a morning session, leaving the afternoon free for discussions and collaborations. Alan Reid talked about pro-finite classification of 3-manifold groups, and Henry Wilton talked about attempts to prove the existence of surface subgroups in various classes of hyperbolic groups.

The fourth day opened with a talk of Cornelia Drutu on amenability and somewhat more analytic directions in Geometric Group Theory. Martin Bridson continued with a survey of classical decision problems, including what is known and what is still open. In the afternoon John McKay surveyed new results on random groups, and Fanny Kassel presented her new constructions of affine actions of right angled Coxeter groups.

The last day opened with Kevin Wortman talking about arithmetic groups and their cohomology, and continued with a talk by Thom Church on (representation) homological stability. In the afternoon Conchita Martinez Perez talked about new theorems for Lie algebras that are analogues of similar theorems that were proven earlier for groups. Remi Coulon ended the workshop talking about his work with Vincent Guirardel on the construction of new monster groups with rather exotic properties.

The conference was well attended. The Simon lecture hall was usually packed, and the audience included not only full-term MSRI members, but also students and faculty from UC Berkeley and other universities in the area, such as Stanford and UC Davis. It also included and researchers at all levels (from graduate and postdoctoral students to senior mathematicians) who came especially for the conference, some of whom were supported by the conference funds. The organizers received many positive comments from appreciative participants, who felt they learned a lot and got a good preview of the major themes of the semester. The quality and clarity of the lectures was especially praised.

<b>Organizers</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Martin	Bridson	University of Oxford
Benson	Farb	University of Chicago
Zlil	Sela	Hebrew University
Karen	Vogtmann	University of Warwick
<b>Speakers</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Mladen	Bestvina	University of Utah
Martin	Bridson	University of Oxford
Ruth	Charney	Brandeis University
Thomas	Church	Stanford University
Rémi	Coulon	Université de Rennes I
Spencer	Dowdall	Vanderbilt University
Cornelia	Drutu	University of Oxford
Koji	Fujiwara	Kyoto University
Camille	Horbez	Université de Paris XI
Fanny	Kassel	Institut des Hautes Études Scientifiques (IHES)
John	Mackay	University of Bristol
Jason	Manning	Cornell University
Conchita	Martinez Perez	Universidad de Zaragoza
Denis	Osin	Vanderbilt University
Samuel	Taylor	Yale University
Henry	Wilton	Center for Mathematical Sciences
Kevin	Wortman	University of Utah



## Introductory Workshop: Geometric Group Theory

August 22-26, 2016

### Schedule

Monday, August 22, 2016			
9:00 AM - 9:15 AM	Simons Auditorium		Welcome
9:15 AM - 10:30 AM	Simons Auditorium	Mladen Bestvina	Mapping class groups and $Out(F_n)$
10:30 AM - 11:00 AM	Atrium		Break
11:00 AM - 12:30 PM	Simons Auditorium	Koji Fujiwara	Hyperbolic-like behaviour of groups
12:30 PM - 2:30 PM	Atrium		Lunch
2:30 PM - 3:20 PM	Simons Auditorium	Camille Horbez	Topological dimension of the boundaries of some hyperbolic $Out(F_n)$ -graphs
3:20 PM - 3:50 PM	Atrium		Tea
3:50 PM - 4:40 PM	Simons Auditorium	Spencer Dowdall	Hyperbolic group extensions
Tuesday, August 23, 2016			
9:00 AM - 10:30 AM	Simons Auditorium	Ruth Charney	The geometry of $CAT(0)$ spaces
10:30 AM - 11:00 AM	Atrium		Break
11:00 AM - 12:30 PM	Simons Auditorium	Jason Manning	Special cube complexes and the virtual Haken conjecture
12:30 PM - 2:30 PM	Atrium		Lunch
2:30 PM - 3:20 PM	Simons Auditorium	Samuel Taylor	Counting loxodromics for hyperbolic actions
3:20 PM - 3:50 PM	Atrium		Tea
3:20 PM - 3:50 PM	Atrium		Poster Session
3:50 PM - 4:40 PM	Simons Auditorium	Denis Osin	The poset of acylindrically hyperbolic structures on a group
4:40 PM - 6:20 PM	Atrium		Reception
Wednesday, August 24, 2014			
9:00 AM - 10:30 AM	Simons Auditorium	Alan Reid	Recognizing 3-manifold groups by their finite quotients
10:30 AM - 11:00 AM	Atrium		Break
11:00 AM - 12:30 PM	Simons Auditorium	Henry Wilton	Surface subgroups
Thursday, August 25, 2014			
9:00 AM - 10:30 AM	Simons Auditorium	Cornelia Drutu	Amenability and fixed point properties
10:30 AM - 11:00 AM	Atrium		Break
11:00 AM - 12:30 PM	Simons Auditorium	Martin Bridson	Decision problems
12:30 PM - 1:30 PM	Atrium		Lunch
1:30 PM - 2:20 PM	Simons Auditorium	John Mackay	Random groups and large-scale geometry
2:30 PM - 3:20 PM	Simons Auditorium	Fanny Kassel	Proper affine actions of right-angled Coxeter groups
3:30 PM - 3:50 PM	Atrium		Tea
Friday, August 26, 2016			
9:00 AM - 10:30 AM	Simons Auditorium	Kevin Wortman	Arithmetic groups: geometry and cohomology
10:30 AM - 11:00 AM	Atrium		Break
11:00 AM - 12:30 PM	Simons Auditorium	Thomas Church	Homological stability, representation stability, and FI-modules
12:30 PM - 2:30 PM	Atrium		Lunch
2:30 PM - 3:20 PM	Simons Auditorium	Conchita Martinez Perez	Extending to Lie algebras some results on subdirect products of groups
3:20 PM - 3:50 PM	Atrium		Tea
3:50 PM - 4:40 PM	Simons Auditorium	Rémi Coulon	Monster groups acting on $CAT(0)$ spaces

<b>Participants</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Carolyn	Abbott	University of Wisconsin-Madison
Victoria	Akin	University of Chicago
Yael	Algom-Kfir	University of Haifa
Javier	Almarza	New York University, Courant Institute
Hanna	Astephan	University of Utah
Catalin	Badea	Université de Lille I (Sciences et Techniques de Lille Flandres Artois)
Loretta	Bartolini	Springer
Dave	Bayer	Barnard College
Calista	Bernard	Stanford University
Mladen	Bestvina	University of Utah
Martin	Bobb	University of Texas
Benjamin	Brück	Universität Bielefeld
Corey	Bregman	Rice University
Martin	Bridson	University of Oxford
Nathan	Broaddus	Ohio State University
Nic	Brody	University of California, Berkeley
Nicholas	Cahill	University of Utah
Bugra	Can	Koç University
Michael	Cantrell	University of Illinois, Chicago
Yu-Chan	Chang	Louisiana State University
Ruth	Charney	Brandeis University
Sangbum	Cho	Hanyang University
Youngjin	Cho	Korea Advanced Institute of Science and Technology (KAIST)
Michelle	Chu	University of Texas
Woojin	Chung	Korea University
Thomas	Church	Stanford University
Thierry	Coulbois	Université d'Aix-Marseille (AMU)
Rémi	Coulon	Université de Rennes I
Ronnie	Crane	Hawaii Pacific University
François	Dahmani	Université de Grenoble I (Joseph Fourier)
Pallavi	Dani	Louisiana State University
Michael	Davis	Ohio State University
Atasi	Debray	University of Calcutta
Angelica	Deibel	Brandeis University
Spencer	Dowdall	Vanderbilt University
Cornelia	Drutu	University of Oxford
Moon	Duchin	Tufts University
Thibaut	Dumont	University of Utah
Matthew	Durham	University of Michigan
Tullia	Dymarz	University of Wisconsin-Madison
Benson	Farb	University of Chicago
James	Farre	University of Utah
Mark	Feighn	Rutgers University
Elizabeth	Field	University of Illinois at Urbana-Champaign

<b>Participants</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Elia	Fioravanti	University of Oxford
David	Fisher	Indiana University
Dominik	Francoeur	Université de Genève
Koji	Fujiwara	Kyoto University
Neil	Fullarton	Rice University
Giles	Gardam	University of Oxford
Jonah	Gaster	Boston College
Ilya	Gekhtman	Rheinische Friedrich-Wilhelms-Universität Bonn
Funda	Gultepe	University of Illinois at Urbana-Champaign
Radhika	Gupta	University of Utah
Tobias	Hartnick	Technion---Israel Institute of Technology
Joel	Hass	University of California, Davis
Simon	Heil	Christian-Albrechts Universität Kiel
Jake	Herndon	University of Illinois, Chicago
George	Herrmann	University of Denver
Arnaud	Hilion	Université d'Aix-Marseille (AMU)
Meng-Che	Ho	University of Wisconsin-Madison
Camille	Horbez	Université de Paris XI
Zheng	Huang	CUNY, Graduate Center
David	Hume	Université de Paris XI
Francesca	Iezzi	University of Warwick
Alessandra	Iozzi	ETH Zürich
Kasia	Jankiewicz	McGill University
Seong Gu	Jeong	Korea Advanced Institute of Science and Technology (KAIST)
Peihong	Jiang	Brown University
Yasushi	Kasahara	Kochi University of Technology
Fanny	Kassel	Institut des Hautes Études Scientifiques (IHES)
Karina	Kelly	University of Nebraska
Alvin	Kerber	University of California, Berkeley
Sang-hyun	Kim	Seoul National University
Heejoung	Kim	University of Illinois at Urbana-Champaign
Jin Hong	Kim	Chosun University
Kihyoung	Ko	Korea Advanced Institute of Science and Technology (KAIST)
Swathi	Krishna	Indian Institute of Science Education and Research Mohali
Robert	Kropholler	University of Oxford
Giang	Le	MSRI - Mathematical Sciences Research Institute
Ian	Leary	University of Southampton
Yuqing	Lin	University of Texas
John	Lott	University of California, Berkeley
Larsen	Louder	University College
Joel	Louwsma	Niagara University
Marissa	Loving	University of Illinois at Urbana-Champaign
John	Mackay	University of Bristol
Joseph	Maher	College of Staten Island, CUNY

<b>Participants</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Johanna	Mangahas	University at Buffalo (SUNY)
Kathryn	Mann	University of California, Berkeley
Jason	Manning	Cornell University
Albert	Marden	University of Minnesota Twin Cities
Conchita	Martinez Perez	Universidad de Zaragoza
Anthony	Martino	University of Oklahoma
Howard	Masur	University of Chicago
Izaak	Meckler	University of California, Berkeley
Mahan	Mj	Tata Institute of Fundamental Research
Dave	Morris	University of Lethbridge
Sarah	Mousley	University of Illinois at Urbana-Champaign
Cristina	Mullican	Boston College
Jean Pierre	Mutanguha	University of Arkansas
Margaret	Nichols	University of Chicago
Sangrok	O	Korea Advanced Institute of Science and Technology (KAIST)
Boris	Okun	University of Wisconsin
Denis	Osin	Vanderbilt University
Priyam	Patel	University of California, Santa Barbara
Catherine	Pfaff	University of California, Santa Barbara
Paul	Plummer	University of Oklahoma
Yulan	Qing	University of Toronto
Kasra	Rafi	University of Toronto
Louann	Rieger	University of Southern California
Simon	Rubinstein-Salzedo	Euler Circle
Jacob	Russell	City University of New York (CUNY)
Andrew	Sánchez	Tufts University
Eugenia	Sapir	University of Illinois at Urbana-Champaign
Kevin	Schreve	University of Michigan
Shane	Scott	Georgia Institute of Technology
Richard	Scott	Santa Clara University
Zlil	Sela	Hebrew University
John	Smillie	University of Warwick
Ignat	Soroko	University of Oklahoma
Karol	Strzałkowski	Polish Academy of Sciences
Benjamin	Stucky	University of Oklahoma
Daniel	Studenmund	University of Utah
Hongbin	Sun	University of California, Berkeley
Matt	Sunderland	CUNY, Graduate Center
Markus	Szymik	Norwegian University of Science and Technology (NTNU)
Robert	Tang	University of Oklahoma
Jing	Tao	University of Oklahoma
Samuel	Taylor	Yale University
Tetsu	Toyoda	National Institute of Technology, Suzuka college
Siming	Tu	University of Chile

<b>Participants</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>
Christopher	Tuffley	Massey University
Weston	Ungemach	Stanford University
Caglar	Uyanik	University of Illinois at Urbana-Champaign
Federico	Vigolo	University of Oxford
Karen	Vogtmann	University of Warwick
Richard	Wade	University of British Columbia
Pei	Wang	Rutgers University
Derrick	Wigglesworth	University of Utah
Henry	Wilton	Center for Mathematical Sciences
Adva	Wolf	Stanford University
Kevin	Wortman	University of Utah
Chenxi	Wu	Cornell University
Wenyuan	Yang	Peking University
Mehdi	Yazdi	Princeton University
Robert	Young	New York University, Courant Institute
Letao	Zhang	State University of New York, Stony Brook



**Officially Registered Participant Information**

<b>Participants</b>		<b>148</b>
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<b>Gender</b>		<b>148</b>
<b>Male</b>	68.24%	101
<b>Female</b>	29.73%	44
<b>Declined to state</b>	2.03%	3

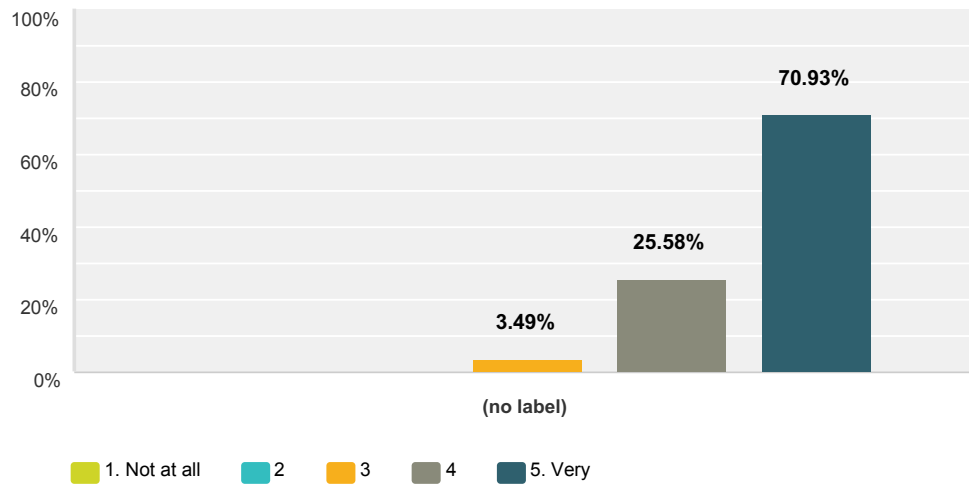
<b>Ethnicity*</b>		<b>165</b>
<b>White</b>	66.89%	99
<b>Asian</b>	24.32%	36
<b>Hispanic</b>	4.05%	6
<b>Pacific Islander</b>	0.68%	1
<b>Black</b>	1.35%	2
<b>Native American</b>	0.00%	0
<b>Mixed</b>	5.41%	8
<b>Declined to state</b>	8.78%	13

\* ethnicity specifications are not exclusive

86 responses out of 148 participants = 59% response rate

### Q1 The workshop was intellectually stimulating

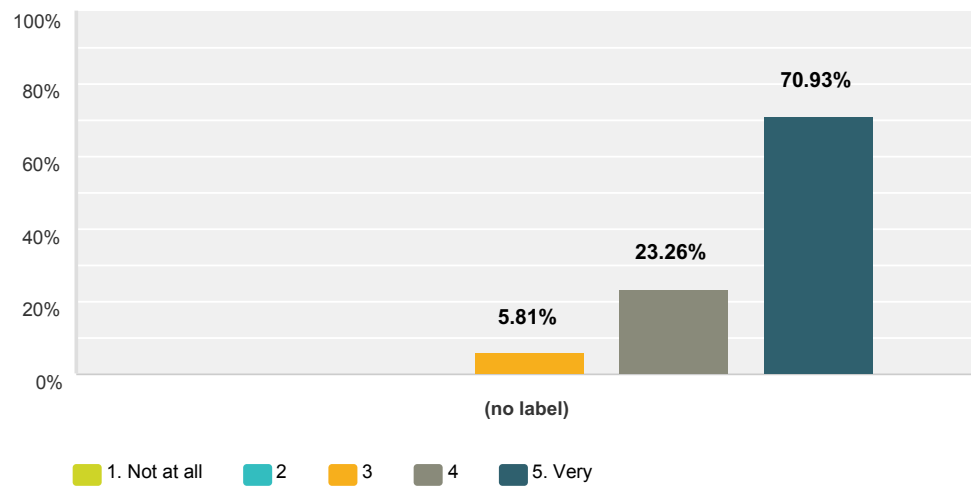
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	0.00% 0	3.49% 3	25.58% 22	70.93% 61	86	4.67

## Q2 The overall experience of the workshop was worthwhile

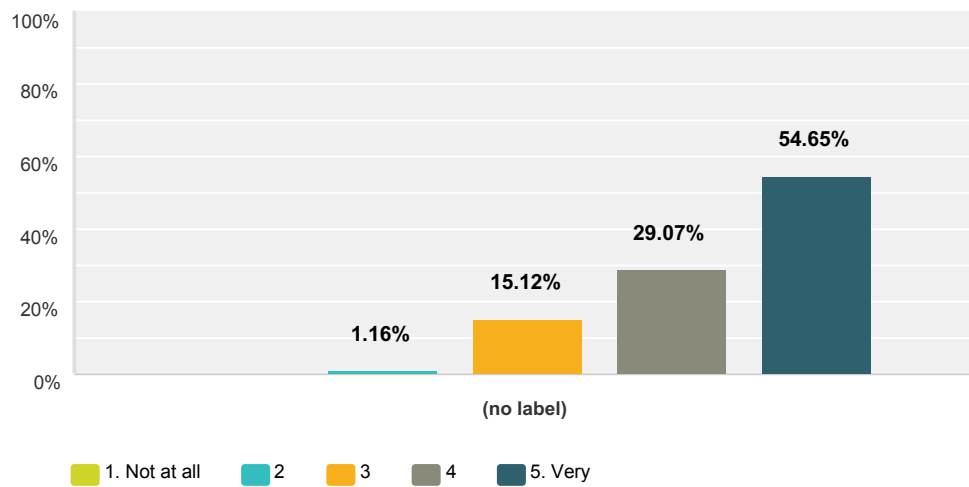
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	0.00% 0	5.81% 5	23.26% 20	70.93% 61	86	4.65

### Q3 The time between lectures was adequate for discussion

Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	1.16% 1	15.12% 13	29.07% 25	54.65% 47	86	4.37

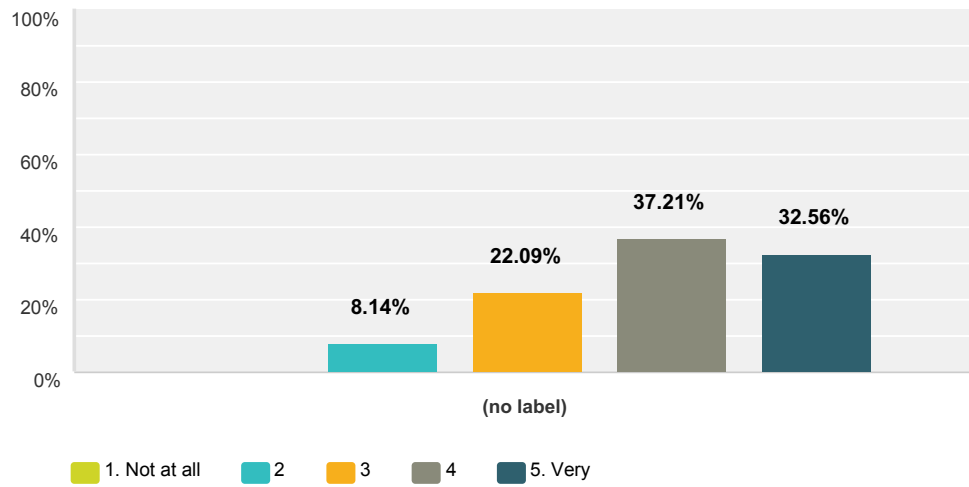
## Q4 Additional comments on the workshop organization

Answered: 12 Skipped: 74

#	Responses	Date
1	New accomodation facilities on or near Berkeley campus were very convenient for me.	9/22/2016 8:09 PM
2	I thought 1 1/2 hour talks without a break was a bit much	9/7/2016 8:20 AM
3	Thanks	9/2/2016 1:10 PM
4	Not a lot of food options; also not ideal to not have coffee in the main lecture hall	9/2/2016 12:12 PM
5	The one and a half hour long talks where a bit too long in my opinion.	9/2/2016 12:07 PM
6	The morning talks were too long to keep me focused. I think splitting them into two smaller talks like the Connections for Women workshop would work better.	9/2/2016 12:07 PM
7	I again argue for being allowed to drink my tea during the lectures... The congress was very nice. I appreciated the scheduling of introductory/wide 1:30h talks	8/29/2016 9:14 AM
8	Perfect!	8/27/2016 4:30 PM
9	This being an "introductory workshop," it would have been nice if the speakers provided explicit references (eg background material, expository papers) during the talk.	8/26/2016 7:37 PM
10	It would be nice to start and end an hour later. Also, it would be better to have on 1.5 hour talk and one 50 minute talk in both the morning and afternoon, instead of both 90 minute talks in the morning	8/26/2016 6:35 PM
11	Breakfast food before first lecture	8/26/2016 4:07 PM
12	I hoped the afternoon talks were less technical. Thanks for organizing.	8/26/2016 3:56 PM

### Q5 I was well prepared to benefit from the lectures

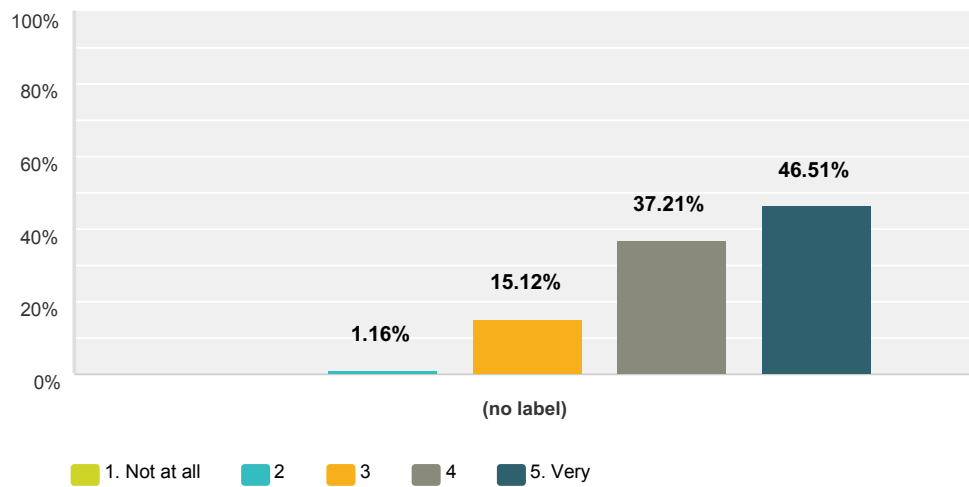
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	8.14% 7	22.09% 19	37.21% 32	32.56% 28	86	3.94

### Q6 My interest in the subject matter was increased by the workshop

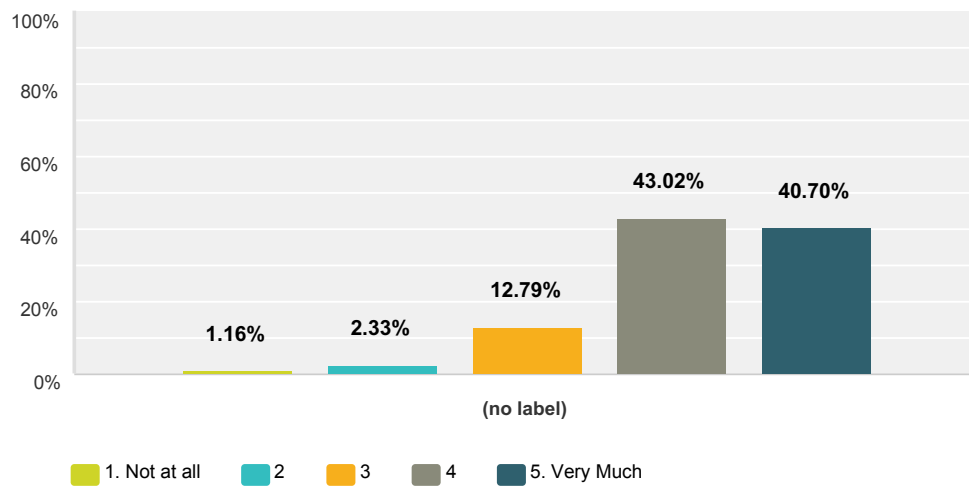
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	1.16% 1	15.12% 13	37.21% 32	46.51% 40	86	4.29

### Q7 The workshop helped me meet people with similar scientific interests

Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very Much	Total	Weighted Average
(no label)	1.16% 1	2.33% 2	12.79% 11	43.02% 37	40.70% 35	86	4.20



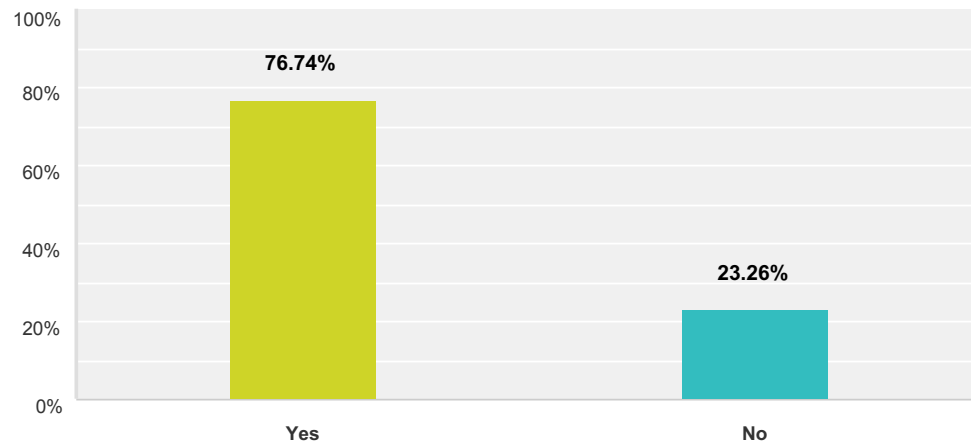
## Q8 Additional comments on your personal assessment

Answered: 5 Skipped: 81

#	Responses	Date
1	It will be better to give more funding for attendants outside US, especially young graduate students.	9/22/2016 8:12 PM
2	The topic of the workshop is one that I am interested in and have had some prior exposure to (I work in topology, geometry and algebra), but is not an area I am active in. I was attracted to attend the workshop by the MSRI description that the intended audience of the introductory workshops is researchers not in the program/researchers not necessarily active in the field. I found the workshop beneficial, but not to the extent that I had hoped: some of the talks were truly introductory, while others were highly technical.	9/22/2016 2:07 PM
3	Even though I am merely an undergraduate student, talks aroused my interest about related topics and I think my gain from this workshop was extraordinary.	9/2/2016 12:17 PM
4	CAT(0) cube complexes were not so familiar to me and I learnt a lot from the week.	8/29/2016 9:15 AM
5	I was only in the atrium where there were lots of tables with at most four sits. A higher sits to tables ratio would make meeting new people easier. In most cases, 3 or 4 people already knew each other and sat together but I couldn't join them at the table.	8/26/2016 7:47 PM

### Q9 Did you attend the reception?

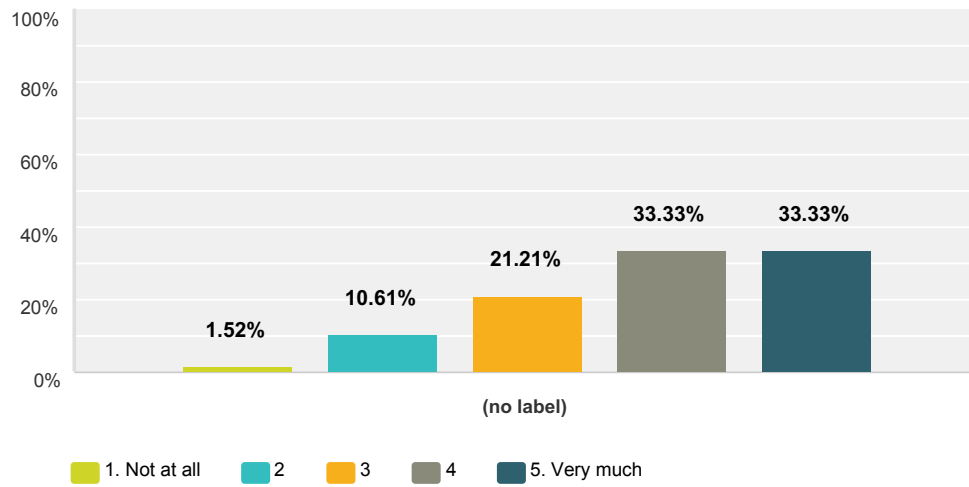
Answered: 86 Skipped: 0



Answer Choices	Responses	
Yes	76.74%	66
No	23.26%	20
<b>Total</b>		<b>86</b>

### Q10 Did the reception help to solidify the contacts you made during the workshop?

Answered: 66 Skipped: 20



	1. Not at all	2	3	4	5. Very much	Total	Weighted Average
(no label)	1.52% 1	10.61% 7	21.21% 14	33.33% 22	33.33% 22	66	3.86

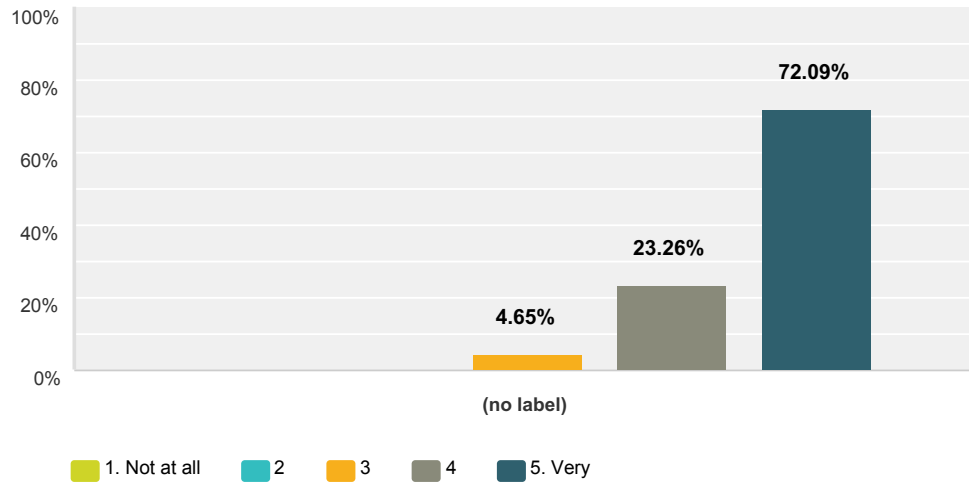
## Q11 Please provide any comments about the reception

Answered: 5 Skipped: 81

#	Responses	Date
1	(I was only able to attend briefly due to another commitment)	9/22/2016 2:12 PM
2	The wine was great (as mathematicians with limited social habilities this help) :-)	8/29/2016 9:21 AM
3	The food was delicious	8/27/2016 10:09 PM
4	See previous comment.	8/26/2016 7:48 PM
5	Great food, an excellent event.	8/26/2016 5:19 PM

### Q12 I found the MSRI staff helpful

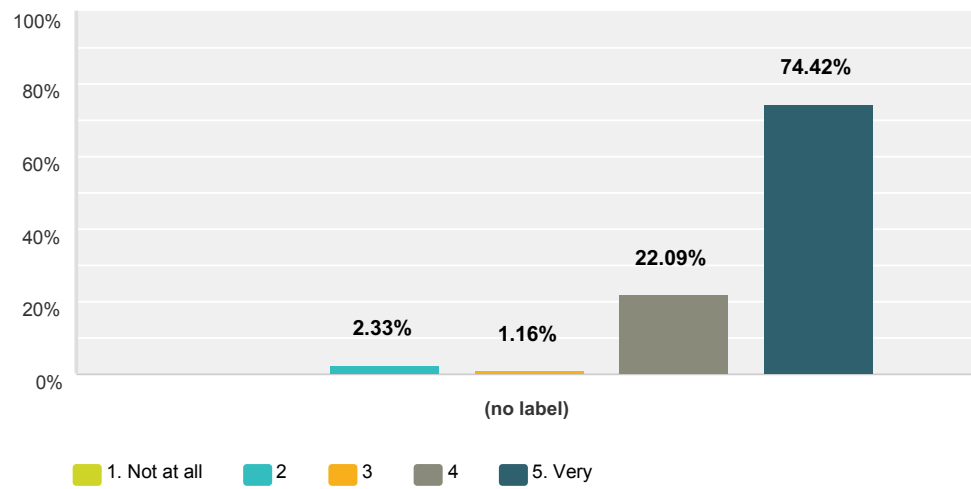
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	0.00% 0	4.65% 4	23.26% 20	72.09% 62	86	4.67

### Q13 The MSRI facilities were conducive for such a workshop

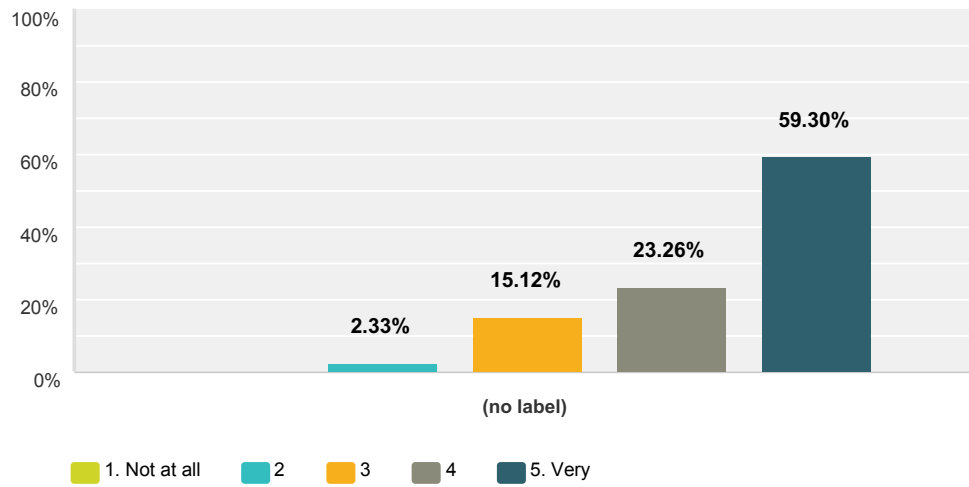
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	2.33% 2	1.16% 1	22.09% 19	74.42% 64	86	4.69

### Q14 The MSRI computer facilities were adequate for such a workshop

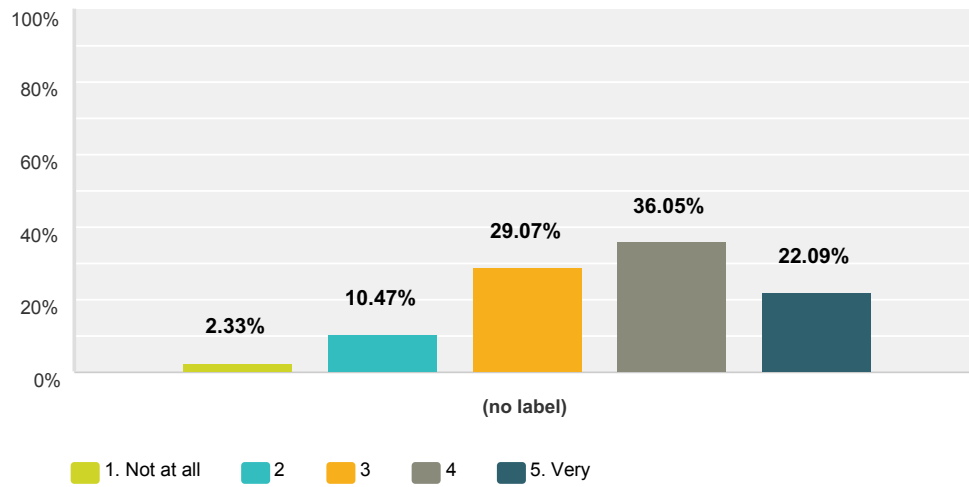
Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	0.00% 0	2.33% 2	15.12% 13	23.26% 20	59.30% 51	86	4.40

### Q15 The MSRI lunch arrangements were satisfactory

Answered: 86 Skipped: 0

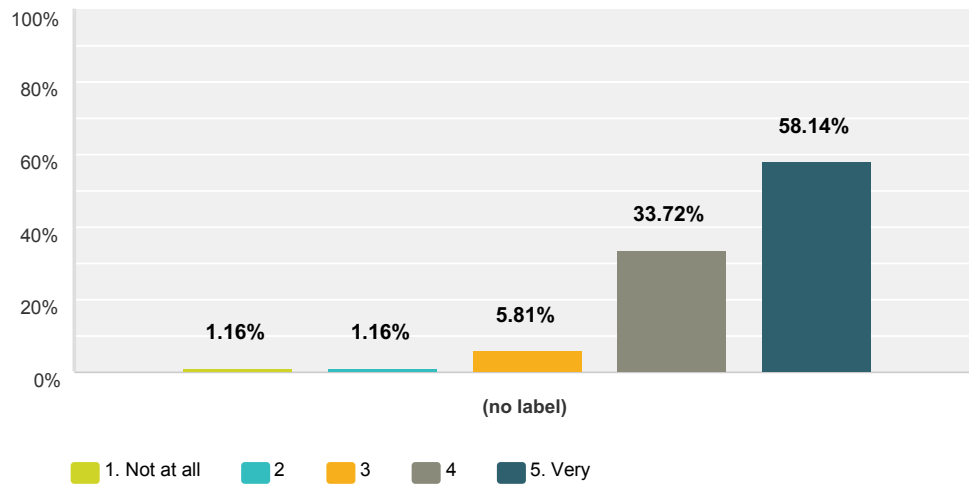


	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	2.33% 2	10.47% 9	29.07% 25	36.05% 31	22.09% 19	86	3.65



### Q16 The MSRI tea arrangements were satisfactory

Answered: 86 Skipped: 0



	1. Not at all	2	3	4	5. Very	Total	Weighted Average
(no label)	1.16% 1	1.16% 1	5.81% 5	33.72% 29	58.14% 50	86	4.47

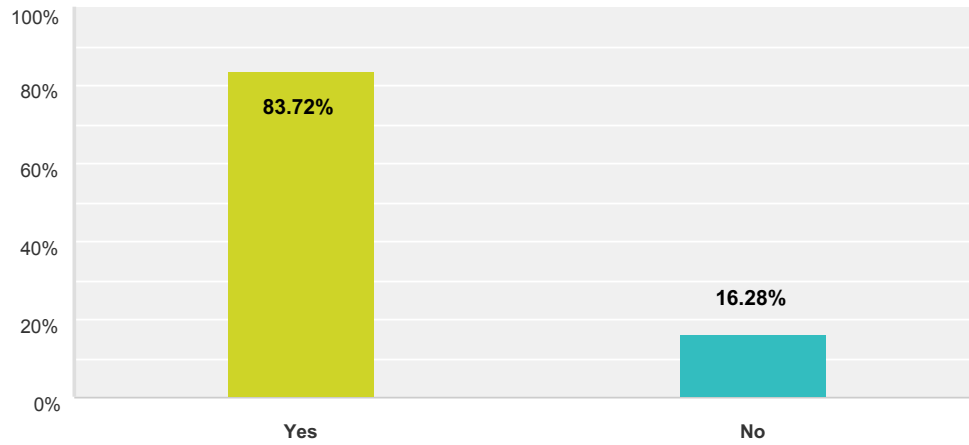
## Q17 Additional comments about the venue

Answered: 11 Skipped: 75

#	Responses	Date
1	During the lectures, the main blackboard is usuasly too dark. So it was very hard to read letters on blackboard.	9/22/2016 8:15 PM
2	The lunch is very repetitive, and the queue was long and slow.	9/22/2016 4:27 PM
3	I brought my own lunch so cannot comment on the lunch arrangements, but the question requires an answer.	9/22/2016 2:17 PM
4	I have always appreciated the way MSRI staff make the lives of visitors easy. The staff is great	9/7/2016 8:23 AM
5	Dropbox was unavailable at MSRI, which made ongoing research slightly more difficult.	9/2/2016 12:13 PM
6	Both quality and price of the lunch were unsatisfactory; However, the well equipped kitchen compesated a lot for this	8/26/2016 8:44 PM
7	Add an extra option for "Not Applicable" or "I Don't Know" on the survey. I'm forced to rate MSRI's computer facilities, which I never even got to see.	8/26/2016 7:51 PM
8	Coffee and tea should be allowed in the lecture hall	8/26/2016 6:37 PM
9	I tend to bring my own lunch because I'm lactose intolerant and I eat a lot.	8/26/2016 5:20 PM
10	Shuttle not nice	8/26/2016 4:08 PM
11	Slow internet connection (sometimes).	8/26/2016 4:03 PM

### Q18 Did you use MSRI's wireless network?

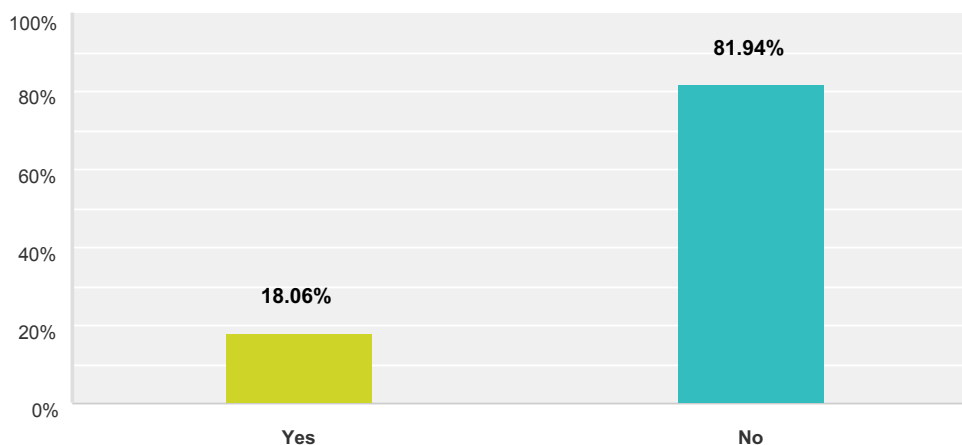
Answered: 86 Skipped: 0



Answer Choices	Responses
Yes	83.72% 72
No	16.28% 14
<b>Total</b>	<b>86</b>

## Q19 Did you experience any difficulties with the network?

Answered: 72 Skipped: 14



Answer Choices	Responses	
Yes	18.06%	13
No	81.94%	59
<b>Total</b>		<b>72</b>

#	Please if yes, please describe your difficulties	Date
1	The signal strength fluctuated a lot on my phone during the day.	9/22/2016 1:47 PM
2	Poor connection in certain areas of the building (e.g., bathrooms), and basically none even just steps outside the building.	9/16/2016 9:52 AM
3	The Guest wifi is sometimes not connected well.	9/5/2016 6:31 PM
4	Internet connection was going on and off frequently and cellular network was out of reach.	9/2/2016 12:18 PM
5	Dropbox was unavailable	9/2/2016 12:14 PM
6	the connection is quite slow	9/1/2016 1:40 PM
7	my phone wouldn't connect but I had no trouble with my computer	8/28/2016 1:28 PM
8	Wifi did not work in the bathroom	8/27/2016 8:56 AM
9	Veryslow	8/26/2016 10:59 PM
10	It would be nice if the wifi was stronger at the tables on the outside.	8/26/2016 8:45 PM
11	It would be good to use the internet during a workshop without resigning it.	8/26/2016 6:53 PM
12	My phone (Samsung Galaxy S5; Android 6.0.1) did not load the redirect page, so I couldn't accept the conditions to connect.	8/26/2016 4:09 PM
13	Slow internet connection (sometimes).	8/26/2016 4:05 PM
14	I couldn't connect to the wifi sometimes.	8/26/2016 3:58 PM

**Q20 We welcome any additional comments  
or suggestions you may have to improve  
the overall experience for future  
participants.**

Answered: 4 Skipped: 82

#	Responses	Date
1	One of the main problems is the shuttle bus to MSRI. It was too inconvenient for me. In the future, this problems should be sloved for all.	9/22/2016 8:18 PM
2	Thank you	9/22/2016 2:18 PM
3	I was happy to be here. it would be great to have a workshop before the semester starts.	8/26/2016 6:54 PM
4	I can't think of anything.	8/26/2016 5:20 PM