



# IMAGINARY 2008-2014

Interactive Math Communication by the  
Mathematisches Forschungsinstitut  
Oberwolfach

Report from November 03, 2014

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Oberwolfach

Klaus Tschira Stiftung  
gemeinnützige GmbH



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Sponsors: Klaus Tschira Stiftung (2011-2016), Oberwolfach Stiftung (2013-2016), Federal Ministry for Science and Education (BMBF) (2008-2009)

# IMAGINARY 2008-2014

IMAGINARY started in 2008 as an interactive travelling exhibition that presents visualisations, interactive installations, virtual worlds, 3D-objects and their mathematical background in an attractive and understandable way. Over the last years it has developed into an open source organization including a platform ([www.imaginary.org](http://www.imaginary.org)) and a network for interactive and participative math communication.

The aim of the platform “IMAGINARY – open mathematics” is to provide a space for the presentation and development of math exhibitions. All contents of IMAGINARY are made available to a broad audience under a free licence and can thus be reproduced and used for individual exhibitions and events. Moreover, the platform provides an opportunity for everyone interested to contribute with their own material and serves as a hub for exchange of ideas in the field of math communication, a field that has seen many advances in the last years. The target group of the platform includes museums, universities and schools. For schools, a special IMAGINARY package has been designed to fit to the requirements and wishes of the students.

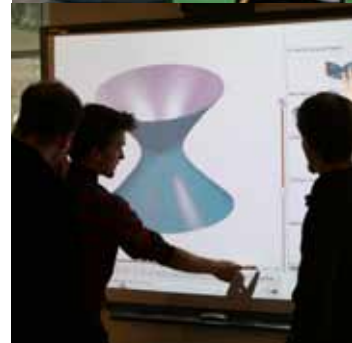
The platform currently hosts two exhibitions: the original exhibition “IMAGINARY – through the eyes of mathematics” that was the starting point for the whole project, and a second exhibition called “Mathematics of Planet Earth” that was organised for the worldwide initiative “Mathematics of Planet Earth”.

“IMAGINARY – through the eyes of mathematics” was designed by the Mathematisches Forschungsinstitut Oberwolfach (MFO) and was supported from 2008 to 2009 by the German Federal Ministry for Education and Research (BMBF). From 2011 to 2016 IMAGINARY is supported by the Klaus Tschira Stiftung. The exhibition has visited more than 125 cities in 29 countries and there are even some permanent installations for example in the Deutsches Museum in Munich and in the MoMath in New York. The didactical and aesthetic concept inspires the visitors for mathematics and sets out to evoke interest and curiosity for the theoretical background: by offering visuell impressions, live-interactions as well as guided tours and individual assistance on site.

A new part of the IMAGINARY project shares modern mathematical research with a broader public. As for instance by so called “Snapshots” (short texts) written by participants of the scientific program of the MFO. The IMAGINARY platform will be extended and translated in further languages. Moreover, an international network is being created to connect math communicators.

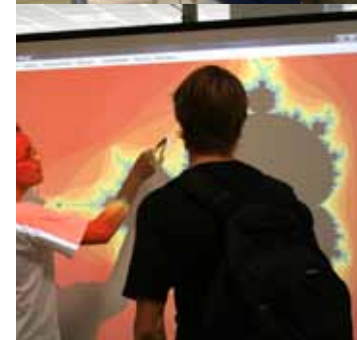
## Exhibitions 2008-2014

05.11.2014 - 07.11.2014	AIMS, Cape Town, South Africa
09.10.2014 - 11.10.2014	Moscow, Russia
03.10.2014 - 30.04.2015	Tavira, Portugal
02.10.2014 - 30.12.2014	Huesca, Spain
13.08.2014 - 21.08.2014	ICM Seoul, South Korea
20.07.2014 - 10.08.2014	Heidelberg, Germany
21.06.2014 - 31.08.2014	Mosonmagyaróvár, Hungary
26.05.2014 - 30.06.2014	Arendal, Norway
07.04.2014 - 11.04.2014	University Orenburg, Russia
25.03.2014 - 22.06.2014	Logroño, Spain
13.03.2014 - 14.03.2014	Dar es Salaam, Tanzania
10.03.2014 - 30.07.2014	Göttingen, Max-Planck-Gymnasium, Germany
16.12.2013 - 20.12.2013	Hanoi, VIASM, Vietnam
12.12.2013 - 15.12.2013	Quy Nhon City, Vietnam
22.11.2013 - 01.12.2013	Bangalore, India
19.11.2013 - 09.12.2013	Krasnojarsk, Siberian Federal University, Russia
15.11.2013 - 30.03.2014	Trondheim, NTNU University Museum, Norway
21.05.2013 - 03.06.2013	Tomsk, Polytechnical University, Russia
22.04.2013 - 29.04.2013	Puschtschino, Russia
05.04.2013 - 31.08.2013	Aarhus, Denmark
15.03.2013 - 16.05.2013	Santiago de Compostela, Spain
05.03.2013 - 08.03.2013	MPE in Paris, France
04.02.2013 - 16.02.2013	Nowosibirsk, Russia
08.12.2012 - 14.12.2012	Suzhou, China



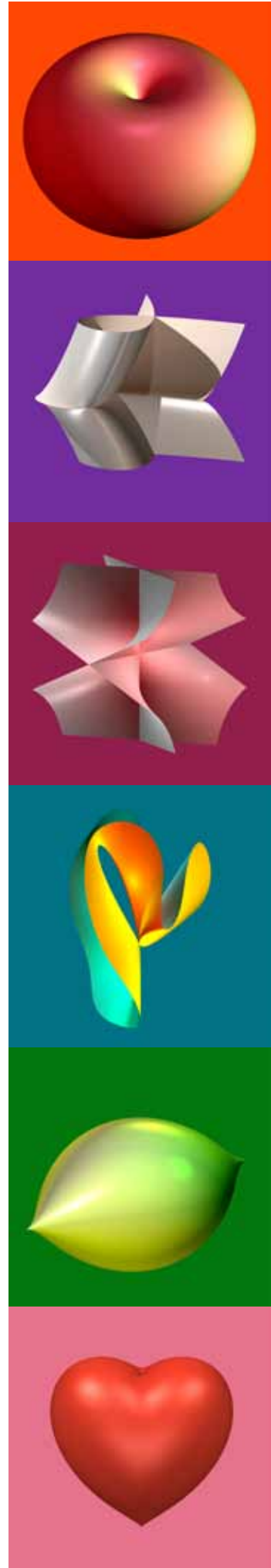


23.11.2012 - 09.12.2012 Jaroslawl, Russia  
 12.11.2012 - 26.11.2012 Coclé, Panama  
 20.10.2012 - 18.11.2012 Buenos Aires, Planetarium, Argentina  
 10.09.2012 - 30.09.2012 Uljanowsk, Russia  
 12.07.2012 - 28.10.2012 Buenos Aires, Tecnópolis, Argentina  
 20.06.2012 - 24.06.2012 Mannheim, Explore Science, Germany  
 15.06.2012 - 17.12.2012 Granada, Parque de las ciencias, Spain  
 01.06.2012 - 23.04.2013 Lissabon, Formas & Fórmulas, Portugal  
 01.05.2012 - 31.05.2012 Belgrad and 11 further cities, Serbia  
 03.05.2012 - 23.05.2012 Albacete, Spain  
 29.03.2012 - 15.04.2012 Moskau, Polytechnische Museum, Russia  
 23.03.2012 - 04.11.2012 Coimbra, Wissenschaftsmuseum, Portugal  
 15.03.2012 - 27.04.2012 Barcelona, Spain  
 10.02.2012 - 07.03.2012 Málaga, Spain  
 19.12.2011 - 02.02.2012 Valencia, Spain  
 17.11.2011 - 13.12.2011 Sevilla, Spain  
 17.10.2011 - 11.11.2011 Madrid, Real Academia de Ciencias, Spain  
 15.09.2011 - 12.10.2011 Zaragoza, Spain  
 15.07.2011 - 14.08.2011 Spektrale 2011, Mainz, Germany  
 01.07.2011 - 31.08.2011 Gijón, Spain  
 03.06.2011 - 24.06.2011 Pamplona, Spain  
 02.06.2011 - 16.06.2011 Krakow, Poland  
 30.05.2011 - 10.06.2011 Warsaw, Poland  
 04.05.2011 - 26.05.2011 Bilbao, Spain  
 30.03.2011 - 27.04.2011 Palma de Mallorca, Spain  
 25.02.2011 - 23.03.2011 Valladolid, Spain  
 27.01.2011 - 17.02.2011 Salamanca, Spain  
 09.11.2010 - 17.12.2010 Paris, Library, France  
 21.09.2010 - 07.10.2010 Zürich, ETH, Switzerland  
 08.03.2010 - 17.03.2010 Cambridge, research institute, England  
 19.01.2010 - 26.02.2010 Hannover, University, Germany  
 05.11.2009 - 15.11.2009 Kiew, Museum, Ukraine  
 09.10.2009 Vienna, Museum, Austria  
 29.9.2009 - 20.10.2009 Münster, University, Germany  
 26.09.2009 Bonn, University, Germany  
 27.04.2009 - 01.05.2009 Stanford, University, USA  
 23.03.2009 - 19.04.2009 Berkeley, University, USA  
 24.03.2009 - 11.05.2009 Dresden, Research Institute, Germany  
 02.03.2009 - 20.03.2009 Vienna, University, Austria  
 05.12.2008 - 19.12.2008 Passau, University, Germany  
 24.10.2008 - 16.11.2008 Saarbrücken, Gallery, Germany  
 01.10.2008 - 19.10.2008 Konstanz, BildungsTURM, Germany  
 24.09.2008 - 21.10.2008 Munich, LMU, Germany  
 08.09.2008 - 26.09.2008 Cologne, Uni-Mensa, Germany  
 05.08.2008 - 29.08.2008 Kassel, Sparkasse, Germany  
 08.07.2008 - 30.07.2008 Rust/Freiburg, Europapark, Germany  
 28.06.2008 - 04.07.2008 Leipzig, Science Summer, Germany  
 29.05.2008 - 25.06.2008 Potsdam, Train Station, Germany  
 17.05.2008 - 25.05.2008 Stuttgart, Idea Park, Germany  
 10.03.2008 - 11.04.2008 Kaiserslautern, ITWM, Germany  
 19.02.2008 - 06.03.2008 Berlin, Urania, Germany  
 10.12.2007 - 18.01.2008 Munich, TU Garching, Germany



## Special Exhibitions and Events 2008-2014

08.12.2014 - 10.12.2014	conference, Potsdam, Germany
03.12.2014 - 04.12.2014	conference, Versailles, France
02.12.2014	conference, Orsay, France
28.11.2014	project und exhibition, Recklinghausen, Germany
05.11.2014 - 07.11.2014	workshop, AIMS, Cape Town, South Africa
14.10.2014 - 17.10.2014	Africa STI Forum, AIMS, Rabat, Morocco
20.09.2014 - 24.09.2014	Heidelberg Laureate Forum, Germany
18.09.2014 - 20.09.2014	MATRIX conference, Dresden, Germany
16.09.2014 - 21.09.2014	Science Fair, Montevideo, Uruguay
06.09.2014	Math Family Day, Berlin, Germany
20.08.2014	IMAGINARY-Panel, ICM Seoul, South Korea
08.08.2014 - 20.08.2014	DonAuction, ICM Seoul, South Korea
19.07.2014	presentation, TU Kaiserslautern, Germany
01.07.2014 - 03.07.2014	kids' workshop, Vienna, Austria
12.06.2014 - 15.06.2014	talk, Humboldt Kolleg, Kyiv, Ukraine
01.06.2014 - 31.12.2014	Surfin'Mat competition, Portugal
22.04.2014 - 24.04.2014	poster, ECSITE, Den Haag, Netherlands
17.05.2014	MPE, Math Day, TU Berlin, Germany
11.05.2014	math festival, Oldenburg, Germany
10.05.2014	MPE, Science Night Berlin, Germany
25.04.2014	event, Tübingen, Germany
11.04.2014	talk, Istanbul, Turkey
02.04.2014 - 04.04.2014	Libre Graphics meeting, Leipzig, Germany
10.03.2014 - 14.03.2014	talk, GDM meeting, Koblenz, Germany
16.01.2014	talk, University Tübingen, Tübingen, Germany
21.12.2013 - 23.12.2013	2 talks + exhibition, Ho Chi Minh City, Vietnam
18.12.2013 - 20.12.2013	presentation + 2 workshops, Montevideo, Uruguay
07.12.2013	Performance, Areatec, Buenos Aires, Argentina
23.09.2013 - 27.09.2013	ÖMG-DMV-congress, Innsbruck, Austria
18.09.2013 - 20.09.2013	ESMA-conference, University Cagliari, Cagliari, Italy
13.09.2013 - 15.09.2013	Surfer-event, phaeno, Wolfsburg, Germany
09.09.2013 - 10.09.2013	MathArt-event, city library, Ljubljana, Slovenia
24.08.2013 - 01.09.2013	exhibition booth, Ideen-Expo, Hannover, Germany
27.07.2013 - 31.07.2013	2 talks, Bridges conference, Enschede, Netherlands
20.07.2013	workshop, Santa Cruz, Brazil
06.06.2013	EXPERIMINTA ScienceCenter, Frankfurt, Germany
06.06.2013 - 08.06.2013	poster, ECSITE, Gothenburg, Sweden
30.05.2013 - 02.06.2013	Salon culture et jeux mathématiques, Paris, France
15.05.2013	Workshop „objets mathématiques“, Paris, France
04.05.2013 - 05.01.2014	Mathe x anders, Wolfsburg, Germany
04.04.2013 - 02.06.2013	Sense of Scale, Measure by Color, Bowdoin, USA
19.06.2012 - 06.07.2012	Workshop, CCEBA, Buenos Aires, Argentina
18.06.2012 - 21.06.2012	School workshop, Buenos Aires, Argentina
24.05.2012 - 25.05.2012	Talk, Math Art Summit, Brussels
05.05.2012	FU Berlin, Open Science Day, Germany
24.04.2012 - 26.04.2012	IMAGINARY Conference, Barcelona, Spain
23.04.2012 - 27.04.2012	School workshops, Athen, Greece
19.03.2012 - 23.03.2012	School exhibition/workshop, Detmold, Germany
25.01.2012	Science Lounge, Bremerhaven, Germany
06.12.2011 - 08.12.2011	Talk, Wissenschaft im Dialog, Köln, Germany
13.10.2011 - 15.10.2011	Science Days, Europapark, Rust, Germany
08.10.2011 - 09.10.2011	Design and Creativity Fair, Innsbruck, Austria
17.08.2011 - 19.08.2011	Exhibition, Barranquilla, Colombia
30.5.2011	Event, ITBA, Buenos Aires, Argentina
24.05.2011 - 28.05.2011	Talk, ECSITE-Konferenz, Warsaw, Poland
05.05.2011	Exhibition, Heidelberg, Germany
25.01.2011 - 27.01.2011	HOBIT-Fair, Darmstadt, Germany
01.02.2011	Opening of the IMU office, Berlin, Germany
04.12 - 05.12. 2010	Talk, Barranquilla, University, Colombia
05.11.2010	8. Action Day, Young University, Innsbruck, Austria
25.10.2010 - 30.10.2010	India (Development of exhibitions), Mumbai, India
26.09.2010 - 29.09.2010	Workshop Raising Awareness in Mathematics, Portugal



19.07.2010 - 24.07.2010  
 19.07.2010 - 22.07.2010  
 07.06.2010 - 25.07.2010  
 12.05.2010 - 30.09.2010  
 17.04.2010 - 29.05.2010  
 17.02.2010 - 24.02.2010  
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 07.05.2008 - 04.09.2008  
 24.4.2008  
 28.01.2008 - 05.02.2008  
 23.01.2008  
 05.12.2007 - 06.12.2007

Talks, MathCamp, Lissabon/Porto/Braga, Portugal  
 Talk, conference on Mathematics & Art, Paris, France  
 Paris, Institut Henri Poincaré, France  
 SURFER-competition, Greece  
 Basel, Jubilee of the University, Switzerland  
 Talks in Tel Aviv and Jerusalem, Israel  
 Reception in the German Embassy, Kiev, Ukraine  
 Advanced training for teachers, talks, Lahore, Pakistan  
 Advent calendar-competition, Germany  
 Cologne, Closing event Year of Mathematics, Germany  
 Advanced training for teachers, Oberwolfach, Germany  
 Science days LMU, Germany  
 Minisymposium, DMV-Conference, Erlangen, Germany  
 Jena, Junior Mathematical Congress, Germany  
 Salem, Robert Bosch Event, USA  
 Mannheim, computer market, Germany  
 Halle, Science Night, Germany  
 Koblenz, Research Day, Germany  
 Bremen, Kino46, Germany  
 Science Ship, Germany  
 Berlin, Girls' Day, Germany  
 Berlin, TU, Germany  
 Berlin, Opening Year of Mathematics, Germany  
 Munich, Dies Academicus TU, Germany

## IMAGINARY Installations in Science Museums

Since 31.08.2014  
 Since 09.04.2014  
 27.03.2014 - 27.06.2014  
 Since December 15, 2012  
 01.06.2012 - 23.04.2013  
 Since September 2011  
 Seit Juli 2011  
 20.01.2011 - 06.06.2011  
 Since 30.01.2010  
 Since 14.12.2008

NIMS-IMAGINARY, Daejeon, South Korea  
 Matopía, Saragossa, Spain  
 Berlin, Deutsches Technikmuseum, Germany  
 MoMath, New York, US  
 Naturhistorisches Museum, Lissabon, Portugal  
 Museum CosmoCaixa, Barcelona, Spain  
 Deutsches Museum, München, Germany  
 Museum CosmoCaixa, Madrid, Spain  
 MiMa Museum, Oberwolfach, Germany  
 Second Live, Internet

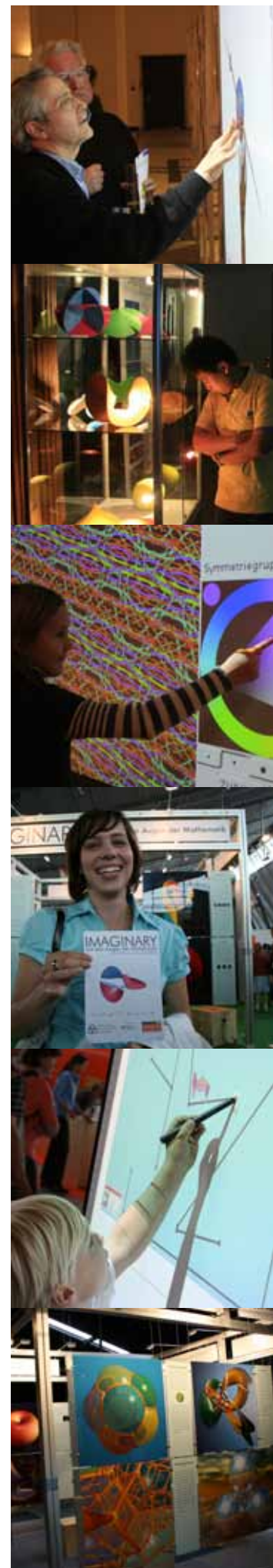
## Awards

15.11.2013  
 23.09.2009

„Medienpreis Mathematik 2013“ by DMV  
 Award „Place in the Land of Ideas 2009“ by Deutsche Bank under the patronage of the federal president of Germany.

## Actions and Projects

The exhibition is accompanied by numerous projects in the field of media and didactics. Especially noteworthy are the IMAGINARY-Entdeckerbox, an open source package with 25 interactive mathematical contents for school, and numerous math & arts competitions amongst others in collaboration with Zeit Online, Spektrum der Wissenschaft and media in Austria, France and Greece. IMAGINARY was presented to an international audience via talks and workshops in more than 15 countries.





## Numbers of Visitors and Downloads

More than 1 million individuals visited IMAGINARY exhibitions, among them over 2000 school classes, which received free guided tours. Additionally several hundred people are visiting the permanent exhibits in the museums every day. The IMAGINARY programs were downloaded more than 500 000 times, the background articles approx. 300 000 times.

## Echo in the Media and Publications

Numerous articles and reports on the individual exhibitions and events were published in print media, the internet, radio and television in Germany and abroad. Among them are articles in newspapers as Die Zeit, Süddeutsche Zeitung, Spiegel Online or BILD-Zeitung and many radio and TV reports for example in RBB, 3SAT/ZDF/WDR or Antena 3. Since 2011 several articles on IMAGINARY have been published, among them in the DMV Mitteilungen, in "Raising Awareness in Mathematics" (Springer Book 2012) and the VisMath Book (Hungary 2012).

## Links

[1] [www.imaginary.org](http://www.imaginary.org)

[2] [www.imaginary.org/entdeckerbox](http://www.imaginary.org/entdeckerbox)

[3] [www.mfo.de](http://www.mfo.de)

[4] <http://facebook.com/imaginary.exhibition>

[5] <http://www.mima.museum>

IMAGINARY platform

IMAGINARY-Entdeckerbox

Mathematisches Forschungsinstitut Oberwolfach

Facebook page of IMAGINARY

MiMa Museum, Oberwolfach

## Citations from the IMAGINARY Guests' Book

This beautiful exhibition is very lively because of the excellently guided tour.

Math makes you happy.

Excellent, in particular the fact that the software can be used in school

Fantastic! Great guidance!

An amazing exhibition. I have spent a lot of time here and I got to know many beautiful things.

This should happen more often, actually this should be a permanent exhibition.

This exhibition is wonderful and beautiful.

The strange world of mathematics is not easy to understand. But here, one gets closer to it.

I don't like to go to a museum, with the exception of this one.

We came again because it was so fascinating!

Perhaps I should have studied mathematics however...

Simply marvellous, the software is cool!

This is fascinating – I wish I would have experienced this in school ;)

We are just lost for words!

Thanks for the good guidance.

This gives a clear proof for the beauty of mathematics!

