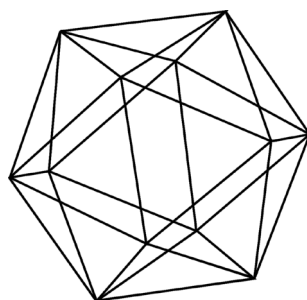


# Max-Planck-Institut für Mathematik Bonn

Arbeitstagung 2007

8. Arbeitstagung der zweiten Serie



## **Arbeitstagung 2007**

### **8. Arbeitstagung der zweiten Serie**

Max-Planck-Institut  
für Mathematik  
Vivatsgasse 7  
53111 Bonn

Germany

Mathematisches Institut  
der Universität Bonn  
Wegelerstraße 10  
53115 Bonn

Germany

# Contents

List of Participants

Programs

Lectures:

F. Hirzebruch	The first Arbeitstagungen with special emphasis on 1957, 1958 and 1962
B. Krötz	Holomorphic extension of representations
M. Rost	Norm residue homomorphism
N. Hitchin	Generalized Riemannian structures
G. Prasad	Fake projective spaces
M. Kontsevich	Donaldson-Thomas invariants
V. Spiridonov	Elliptic Gauss hypergeometric series
E. Looijenga	The period map for cubic fourfolds
G. Faltings	Coverings of p-adic period domains
G. Margulis	Homogeneous flows and geometry of numbers
C. McMullen	Dynamics on algebraic surfaces
A. Zorich	Rational billiards and Teichmüller flows
A. Wienhard	Bounded cohomology and representations of surface groups
A. Langer	Instanton bundles
K. Yeats	Feynman graphs to motives
R. Kaufmann	Stringy K-theory
W. Neumann	Universal abelian covers of normal surface singularities

Abbaspour, Hossein	MPI/U. Lille	Harder, Günter	MPI
A'Campo, Norbert	U. Basel	Hawk, Roger	Yale U.
Adian, Sergei	Steklov Math. Inst. Moscow	Heiermann, Volker	U. Bonn/HU Berlin
Ahanjideh, Neda	Tarbiat Modares U.	Heinze, Joachim	Springer Verlag, Heidelberg
Albeverio, Sergio	U. Bonn	Hering, Milena	MPI/IMA, Minneapolis
Aluffi, Paolo	Florida State U.	Hirzebruch, Friedrich	MPI
Asgari, Mahdi	Oklahoma State U.	Hitchin, Nigel	Oxford U.
Bak, Anthony	U. Bielefeld	Hoeve, Maarten	U. of Amsterdam
Ballmann, Werner	U. Bonn	Hunsicker, Eugénie	MPI/Lawrence U.
Barthel, Gottfried	U. Konstanz	Husemöller, Dale	MPI
Bauer, Robert	U. of Illinois at Urbana-Champaign	Iranmanesh, A.	Tarbiat Modarres U., Tehran
		Ivanov, Stefan	MPI/Sofia U.
Baues, H.-J.	MPI	Jakelic, Dijana	MPI/U. of Virginia
Bernstein, Joseph	MPI	Jolevska-Tuneska, Biljana	Skopje, Macedonia
Bertolin, Cristina	ETH Zürich	Juhl-Jöricke, Burglind	MPI
Bertram, Wolfgang	Inst. Elie Cartan, Nancy I	Kaiser, Christian	MPI
Bödighheimer, C.-F.	U. Bonn	Karpinski, Marek	U. Bonn
Bohle, Christoph	TU Berlin	Kaufmann, Ralph	MPI/U. Connecticut
Bruinier, Jan	MPI	Kazdan, Jerry	U. Pennsylvania + U. Bonn
Caspar, Alexander	ETH Zürich	Kellerhals, Ruth	U. of Fribourg
Chan, Ping-Shun	MPI/Ohio St. U.	Kerner, Dmitry	MPI/Tel Aviv U.
Chen, Bo	MPI/U. Köln	Klimenko, Elena	MPI/Gettysburg College
Chinta, Gautam	HIM, Bonn	Kobayashi, Toshiyuki	MPI/Kyoto U.
Delorme, Patrick	Luminy	Kong, Liang	MPI
Dessai, Arnand	U. Fribourg	Kontsevich, Maxim	IHES
Dobrynskiy, Vladimir	Inst. for Metal Physics of N.A.S.U.	Kosyak, Alexandre	Inst. of Math., Kiev
		Kreimer, Dirk	IHES
Dos Santos, Joao Pedro	U. de Rennes	Krötze, Bernhard	MPI
		Kurke, Herbert	HU Berlin
Durov, Nikolai	MPI	Lalin, Matilde	MPI
Dynov, Ivan	MPI	Langer, Adrian	Warsaw U.
Dzhumadil'daev, Askar	Inst. of Mathematics, Almaty	Lebedev, Dmitry	ITEP Moscow
Eichhorn, Jürgen	Greifswald	Lesch, Matthias	Bonn
Elashvili, Alexander	Tbilisi St. U., Georgia	Liu, Ximin	Dalian U.
Eyral, Christophe	MPI	Looijenga, Eduard	Utrecht U.
Faltings, Gerd	MPI	Luo, Wenzhi	Ohio St. U.
Feigon, Brooke	IAS, Princeton	Mahanta, Snigdhasayan	MPI/Chennai Math. Inst.
Felshtyn, Alexander	Boise St. U. + Szczecin U.	Manin, Yuri	MPI/Northwestern U.
Fialowski, Alice	MPI/Eotvos Lorand U., Budapest	Marathe, Kishore	Brooklyn College/MPI-MIS
		Marcolli, Matilde	MPI
Friedrich, Reinhold	U. Bonn	Margulis, Gregory	Yale U.
Furushima, Mikio	Kumamoto U., Japan	Markushevich, Dmitri	MPI/U. Lille
Gajda, Wojciech	MPI/UAM Poznan	McIntyre, Andrew	MPI/U. Montréal + Concordia U.
Garakami, Mahdi T.	IPM Tehran		
van der Geer, Gerard	U. Amsterdam	McMullen, Curtis	Harvard U.
Ghasemabadi, Mahnaz Faroudi	Tarbiat Modares U.	Mehrdad, Mehran	MPI
		Mellit, Anton	MPI
Gindikin, Simon	Rutgers U.	Mendoza, Eduardo	LMU München
Goertsches, Oliver	MPI/U. Köln	Mesland, Bram	MPI/Penn State U.
Gorinon, Alexey	MPI/Radboud U., Nijmegen	Meyer, Wolfgang	U. Münster
Greenberg, Matthew	Harvard U.	Mihalache, George	U. Hamburg
Greuel, Gert-Martin	TU Kaiserslautern	Mizuno, Yoshinori	MPI/Keio U.
Gromoll, Detlef	SUNY Stony Brook, New York	Moree, Pieter	MPI
		Müller, Werner	U. Bonn
Grunewald, Fritz	U. Düsseldorf	Namikawa, Yukihiko	Nagoya U.
Gubler, Walter	U. Dortmund	Narasimhan, Mudumbai	MPI
Hambleton, Ian	McMaster U.		

Neretin, Yuri	IITEP, Moscow	Vertman, Boris	U. Bonn
Neumann, Walter	Columbia U., New York	Viazovska, Maryna	MPI/TU Kaiserslautern
Nicolae, Florin	TU Berlin	Vlasenko, Mariya	MPI
Nieper-Wißkirchen	MPI/U. Mainz	Wahl, Jonathan	U. of North Carolina, Chapel Hill
Noohi, Behrang	Florida State U.		U. of California, Santa Cruz
Oda, Takayuki	U. of Tokyo	Weissman, Martin	U. of Chicago
Ohno, Yasuo	MPI/Kinki U., Osaka City	Wienhard, Anna	MPI/U. Tehran
Okada, So	MPI/U. of Massachusetts, Amherst	Yassemi, Siamak	Boston U.
	Utrecht U.	Yeats, Karen	MPI/Academica Sinica
Oort, Frans	U. of Amsterdam	Yu, Chia-Fu	MPI
Opdam, Eric	MPI/U. Paris	Zagier, Don	MPI/Peking U.
Ouled Azaiez, Najib	MPI/Boston U.	Zhang, Depeng	Columbia U.
Pasol, Vincent	ETH Zürich	Zhang, Shou-Wu	U. de Rennes I
Pink, Richard	U. of Pennsylvania	Zorich, Anton	MPI/Moscow Lomonosov St. U.+Steklov Math. Inst.
Pop, Florian	Warsaw	Zudilin, Vadim	
Pragacz, Piotr	U. of Michigan, Ann Arbor		
Prasad, Gopal	U. Bonn		
Putzka, Jens	Kath. U., Eichstätt		
Rohlf, Jürgen	U. Bielefeld		
Rost, Markus	MPI/Utrecht U.		
Roytenberg, Dmitry	Queen's U., Kingston, Canada		
Salmasian, Hadi	MPI/Moscow		
	HIM, Bonn		
Samokhin, Alexander	MPI/U. Paris 7		
Sayag, Eitan	U. Hamburg		
Scala, Luca	U. Dortmund		
Schäfer, Lars	MPI/U. of Kopenhagen		
Scharlau, Rudolf	U. Duisburg-Essen		
Schlichtkrull, Henrik	U. Wien/ESI		
Schmitt, Alexander	U. Mannheim		
Schwermer, Joachim	U. of Pennsylvania		
Seiler, Wolfgang	MPI/Rikkyo U., Tokyo		
Shatz, Steven S.	KSU & IHES		
Shioda, Tetsuji	Charles U., Prag		
Soibelman, Yan	Cornell U.		
Somberg, Petr	JINR, Dubna		
Speh, Birgit			
Spiridonov,			
Vyacheslav			
Sreekantan, Ramesh	Tata Institute of Fundamental Research, Mumbai		
	MPI/Ohio St. U.		
Stanton, Bob	MPI		
Stellari, Paolo	U. Loughborough		
Strohmaier, Alexander	Utrecht U.		
Strooker, Jan	U. Münster		
Su, Yang	U. Nijmegen		
van Suijlekom, Walter	U. of Gdansk, Polen		
Szczepanski, Andrzej	MPI		
Takagi, Hiromichi	Emmy Noether Inst., Bar- Ilan U.		
Teicher, Mina	Collège de France, Paris		
	MPI/U. of Tokyo		
Tits, Jacques	MPI		
Toda, Yukinobu	U. Kaiserslautern		
Torres, Rafael	Skopje, Macedonia		
Trautmann, Günther	Newcastle U.		
Tuneski, Nikola			
Vdovina, Alina			

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### Program of the Mathematische Arbeitstagung 2007 (I)

#### Friday, June 22, 2007

- 3:30 – 4:15p.m.                    Opening and first program discussion
- 5:00 – 6:00 p.m.                    F. Hirzebruch (MPIM)  
The first Arbeitstagungen with special emphasis on 1957,  
1958 and 1962.

#### Saturday, June 23, 2007

- 10:15 – 11:15 a.m.                B. Krötz (MPIM)  
Holomorphic extension of representations
- 12:00 – 1:00 p.m.                M. Rost (Univ. Bielefeld)  
Norm-Residue Homomorphism
- 5:00 – 6:00 p.m.                N. Hitchin (Oxford University)  
Generalized Riemannian structures

#### Sunday, June 24, 2007

- 10:00 – 10:15 a.m.                Program discussion (II)
- 10:15 – 11:15 a.m.                G. Prasad (University of Michigan)  
Fake projective spaces
- 12:00 – 1:00 p.m.                M. Kontsevich (I.H.E.S.)  
Donaldson-Thomas invariants
- 5:00 – 6:00p.m.                V. Spiridonov (JINR)  
Elliptic Gauss hypergeometric series

All lectures will take place in the “Großer Hörsaal,” Wegelerstraße 10. There will be *tea breaks* from 11:15 a.m. on in Wegelerstrasse and from 3:30 p.m. in the MPI. At this time also *mail* will be distributed and you will have the opportunity to pay your *Tagungsbeitrag* of 30 Euro. *Lists of participants* and other information will lie out in Wegelerstrasse and in the MPIM. *All participants* are requested to put their name on the list!

\*\*\*\* All Arbeitstagung participants and those accompanying them are invited to the *Boat Trip* on Monday and the *Rector’s Party* on Tuesday \*\*\*\*

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## Program of the Mathematische Arbeitstagung 2007 (II)

### Monday, June 25, 2007

- 10:15 – 11:15 a.m.            E. Looijenga (Utrecht University)  
Period map for cubic fourfolds
- 12:30 – ca. 6:30 p.m.        Boat Trip  
See special leaflet

### Tuesday, June 26, 2007

- 10:00 – 10:15 a.m.            Program discussion (III)
- 10:15 – 11:15 a.m.            G. Faltings (MPIM)  
Coverings of  $p$ -adic period domains
- 12:00 – 1:00 p.m.            G. Margulis (Yale)  
Homogeneous flows and geometry of numbers
- 5:00 – 6:00 p.m.            C. McMullen (Harvard)  
Dynamics on algebraic surfaces
- 8:00 – 11 p.m.                Rector's Party  
Festsaal der Universität, Hauptgebäude (entrance from  
"Am Hof" street across from Bouvier bookstore)

All lectures will take place in the "Großer Hörsaal," Wegelerstraße 10. Except for Monday, there will be *tea breaks* from 11:15 a.m. on in Wegelerstrasse and 3:30 p.m. on in the MPI. At this time also *mail* will be distributed and you will have the opportunity to pay your *Tagungsbeitrag* of 30 Euro.

*Lists of participants* and other information will lie out in Wegelerstrasse and in the MPI. *All* participants are requested to put their name on the list!

\*\*\*\*\*All Arbeitstagung participants and those accompanying them are invited to the *Boat Trip* on Monday afternoon and the *Rector's Party* on Tuesday (see special announcements)\*\*\*\*\*

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### Program of the Mathematische Arbeitstagung 2007 (III)

#### Wednesday, June 27, 2007

- 10:15 – 11:15 a.m.           A. Zorich (IRMAR)  
Rational billiards and Teichmüller flows
- 12:00 – 1:00 p.m.           A. Wienhard (Univ. of Chicago)  
Bounded cohomology and representations of surface groups
- 5:00 – 6:00 p.m.           A. Langer (Univ. Warschau/MPIM)  
Instanton bundles

#### Thursday, June 28, 2007

- 10:15 – 11:15 a.m.           K. Yeats (Boston Univ.)  
Feynman graphs to motives
- 12:00 – 1:00 p.m.           R. Kaufmann (Univ. of Connecticut/MPIM)  
Stringy K-theory
- 5:00 – 6:00 p.m.           W. Neumann (Columbia Univ.)  
Universal abelian covers of normal surface singularities

All lectures will take place in the “Großer Hörsaal,” Wegelerstraße 10. There are *tea breaks* from 11:15 a.m. on in Wegelerstrasse and 3:30 p.m. on in the MPI. At this time also *mail* will be distributed and you will still have the opportunity to pay your *Tagungsbeitrag* of 30 Euro.

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