



Berlin Mathematical School

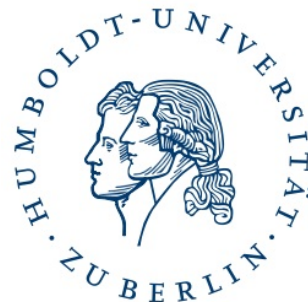
Established in 2006

A joint graduate school of

Freie Universität

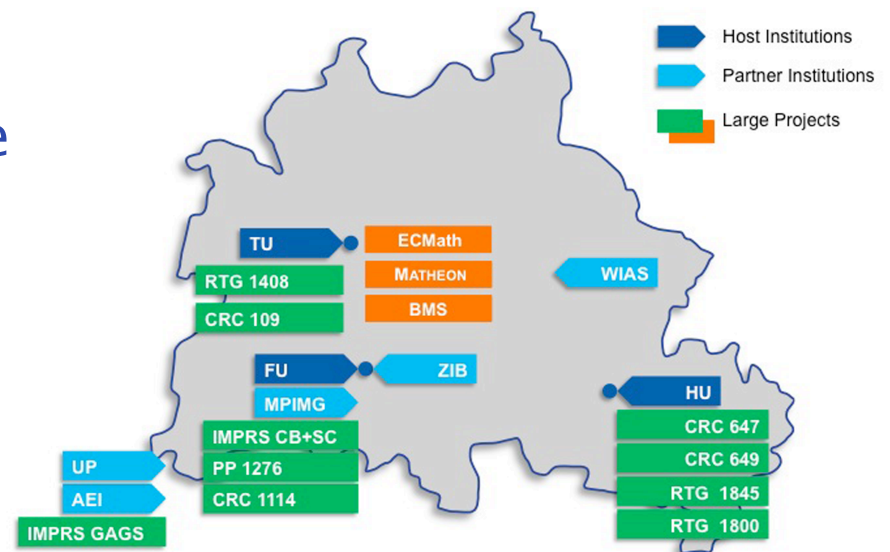


Berlin



Berlin Mathematical School

- Joint graduate school of the Berlin math departments (FU, HU, TU)
- Funded 2006 – 2019 by the German “Excellence Initiative”
- After 2019 funded by the host universities / German “Excellence Initiative”
- Combines Berlin’s broad expertise in mathematics into an excellent environment for graduate studies



BMS Research Areas

1. Differential geometry, global analysis, and mathematical physics
2. Algebraic and arithmetic geometry, number theory
3. Stochastics and mathematical finance
4. Discrete mathematics and optimization
5. Geometry, topology, and visualization
6. Numerical mathematics and scientific computing
7. Applied analysis and differential equations
8. Mathematics of data science

Two-phase English-language study program

Bachelor	Phase I			Phase II					
	1	2	3	4	5	6	7	8	9
	Basic courses			QE	Thesis research				
				Advanced courses					
	BMS Fridays, soft skills, summer schools, ...								

Phase I

- Admission with a bachelor's degree
- Usually 3 – 4 semesters
- Phase I requirements:
 - 5 Basic Courses
 - 2 Advanced Courses and one seminar with a paper
- BMS Friday colloquia
- Mentor and advisor
- Ends with BMS Qualifying Exam to enter Phase II



BMS Basic Courses

	Area	BMS Course	FU Course Name	HU Course Name	TU Course Name
Basic	1	Analysis and geometry on manifolds	Differentialgeometrie II	Differentialgeometrie I	Differentialgeometrie II
	1	Riemannian geometry	Differentialgeometrie I	Differentialgeometrie II	
	2	Commutative algebra	Algebra I	Algebra II	Algebra II
	2	Algebraic geometry	Algebra II	Algebraische Geometrie I	
	3	Stochastic processes I: discrete time	Stochastik II	Stochastik II	Wahrscheinlichkeitstheorie II
	3	Stochastic processes II: continuous time		Stochastische Analysis	Wahrscheinlichkeitstheorie III
	4	Combinatorics	Diskrete Mathematik I		Diskrete Strukturen I / Kombinatorik
	4	Discrete Optimization	Diskrete Mathematik II*/ Algorithmic Combinatorics		Diskrete Optimierung (ADM II)
	4	Nonlinear optimization		Nichtlineare Optimierung	Nichtlineare Optimierung
	5	Classical geometries	Geometrie		Geometrie I
	5	Discrete differential geometry and visualization	Scientific Visualization		Geometrie II
	5	Algebraic topology	Topologie II	Topologie I	Topologie
	6	Numerical methods for ODEs and numerical linear algebra	Numerik II	Numerik gewöhnlicher Differentialgleichungen	Numerische Mathematik II
	6	Numerical methods for PDEs	Numerik III	Numerik partieller Differentialgleichungen I	Numerik partieller Differentialgleichungen
	7	Dynamical systems	Differentialgleichungen I*		Mathematische Physik I
7	Partial differential equations	Differentialgleichungen I*/ Differentialgleichungen II*	Partielle Differentialgleichungen	Differentialgleichungen IIA + Differentialgleichungen IIB	
Additional		Complex analysis	Funktionentheorie		Komplexe Analysis I
		Functional analysis	Functional analysis I	Funktionalanalysis	Funktionalanalysis I

<http://www.math-berlin.de/images/bms-basic-course-dictionary.pdf>

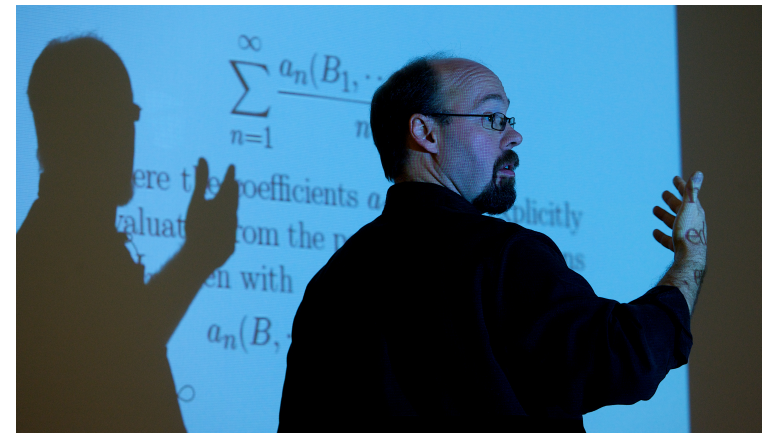
Phase II

- Admission with a master's degree (or equivalent)
- Usually 4 – 6 semesters
- Thesis work, integrated in research group
- One Advanced Course per semester
- Thesis advisor and separate mentor
- BMS Fridays



BMS Fridays

- Distinguished guest speakers, e.g. Gross, Okounkov, Werner, Wright, etc.
- Kovalevskaya Colloquia with “Kovalevskaya Lunch”
- Tea & cookies before every Friday lecture
- Student–run “What is...?” Seminar



Soft-Skills Seminars

- Intercultural training: Germany for the newcomer and for the experienced
- Time and self-management during the doctorate
- Communication, conflict management, negotiation
- Teaching/writing mathematics
- Planning your career path
- etc.

BMS Support

Scholarships

- Around 50% of Phase I students are awarded a BMS scholarship
- All Phase II students are offered financial support (25% from BMS, 75% from other sources)

Financial support also for

- Conferences and summer schools
 - once during Phase I
 - once a year during Phase II
- German language courses

Questions?

Contact:

BMS One-Stop Office

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www.math-berlin.de