

*Mailing adress:*

Rheinische Friedrich-Wilhelms-Universität Bonn  
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[kalafat@math.uni-bonn.de](mailto:kalafat@math.uni-bonn.de)<http://kalafat.droppages.com/>**PERSONAL INFORMATION**

- **Date of Birth** : November 14 , 1978.
- **Citizenship** : Turkish.

**EDUCATION**

- **2007** : *Ph.D. in Mathematics (Geometry)*. Stony Brook University, New York, USA.  
Supervised by Professor Claude LeBrun.
- **2000** : *B.Sc. in Mathematics*. Orta Doğu Teknik Üniversitesi (METU), Ankara, Türkiye.  
Completing the undergraduate program successfully in 3.5 years.
- **1996** : *Diploma*. İzmir Science High School, Türkiye. Science High School admits 96 students each year, chosen among the top 100 scoring students on a nationwide exam during that period of time.

**APPOINTMENTS**

- **2022- ...** : Rheinische Friedrich-Wilhelms-Universität Bonn, Germany.  
*Visiting Associate Professor of Mathematics.*
- **2018-21**: Nesin Mathematical Village, Türkiye.  
*Associate Professor of Mathematics.*
- **2012-16**: Tunceli Üniversitesi, Türkiye.  
*Founder of the Undergraduate program. Associate Professor in 2013. Department Chair in 2014-16.*
- **2010-12** : Orta Doğu Teknik Üniversitesi (METU), Ankara, Türkiye.  
*Assistant Professor. (According to the hiring committee.)*
- **2007-10** : University of Wisconsin at Madison, USA.  
*Van-Vleck Assistant Professor of Mathematics.*
- **2000-07** : Stony Brook University, New York, USA.  
*Teaching and Research Assistant.*
- **2000** : Orta Doğu Teknik Üniversitesi (METU), Ankara, Türkiye.  
*Teaching Assistant.*

**VISITING POSITIONS**

- **2025 Spring** : Max Planck Institute for Mathematics (MPIM), Bonn, Germany. *Visiting Researcher.*
- **2014 Spring** : Michigan State University, USA. *Visiting Assistant Professor.*
- **2013 Spring** : Michigan State University, USA. *Visiting Assistant Professor.*
- **2008 August**: Institut des Hautes Études Scientifiques (IHÉS), Bures-Sur-Yvette, France. *V. Researcher.*
- **2007 June** : Feza Gürsey Institute (FGE), İstanbul, Türkiye. *Visiting Researcher.*

## RESEARCH INTERESTS

- *Topology and Geometry*: Differential Geometry of 4-Manifolds , Complex Algebraic Geometry.
- *In particular*: Self-dual, Einstein, Kähler, locally conformally flat(LCF),  $G_2$  metrics. General Relativity. Conformal Geometry.

## GRANTS

1. **2013**: Tübitak Grant 1001. (257,135 TL)  
"Mathematical Methods in General Relativity." (Geometry in dimension 4.)
2. **2015**: Tübitak Grant 1001. (328,529 TL)  
"Geometry in dimensions 7, 8 and above with relations to Mirror Symmetry."
3. **2016**: BAGEP, Matematik. (20,000 TL)  
"Bilim Akademisi."

## PUBLICATIONS & PREPRINTS

### ARTICLES

1. *Deformations of Scalar-Flat Anti-Self-Dual metrics and Quotients of Enriques Surfaces.*  
Proc. of 13th Gökova GT Conf. pp.106-122. International Press, 2007. (Research article)
2. *Scalar Curvature and Connected Sums Of Self-Dual 4-Manifolds.*  
Journal of the European Mathematical Society, 13, no.4, 883-898, 2011.
3. *Geometric Invariant Theory and Einstein-Weyl Geometry.*  
Expositiones Mathematicae, 29, no.2, 220-230, 2011.
4. *Complex and Symplectic Structures on Panelled Web 4-Manifolds (with Argüz).*  
Topology and its Applications, 159, 2168-2173, 2012.
5. *A Class of Locally Conformally Flat 4-Manifolds (with S. Akbulut).*  
New York Journal of Mathematics. 18 (2012) 733-763.
6. *Self-Dual metrics on Non-simply connected 4-Manifolds (with Argüz and Ozan).*  
Journal of Geometry and Physics. 64 (2013) 79-82.
7. *Locally conformally flat and self-dual structures on simple 4-manifolds.*  
Proc. of the 19th Gökova GT Conference, pp.111-122. International Press, Boston, 2013.
8. *Conformally Kähler surfaces and orthogonal holomorphic bisectonal curvature (with C. Koca).*  
Geometriae Dedicata. 174 (2015), 401-408.
9. *Algebraic topology of  $G_2$  manifolds (with S. Akbulut).*  
Expositiones Mathematicae 34 (2016), no.1, 106-129.
10. *Compact complex surfaces of locally conformally flat type (with C. Koca).*  
Houston Journal of Mathematics. 42 (2016), no. 4, 1127-1139.
11. *Free immersions and panelled web 4-manifolds.*  
International Journal of Mathematics. 29 (2018), no. 14, 1850087, 12 pp.
12. *On the curvature of Einstein-Hermitian surfaces (with C. Koca).*  
Illinois Journal of Mathematics. 62 (2018), no. 1-4, 25-39.
13. *Addendum to Geometric Invariant Theory and Einstein-Weyl Geometry. Expo. Math.29,No.2,220-30,2011.*  
Expositiones Mathematicae. 37 (2019), no. 1, 92-95.

14. *Locally conformally flat metrics on surfaces of general type. (with Ö. Kelekçi).*  
Illinois Journal of Mathematics. 64 (2020), no. 1, 93-103.
15. *On special submanifolds of the Page space (with R. Sarı).*  
Differential Geometry and its Applications. 74 (2021), 101708.
16. *Algebraic Topology of Special Lagrangian Manifolds. (with E. Yalçınkaya).*  
Indagationes Mathematicae. (N.S.) 32 (2021), no. 3, 579-597.

#### BOOK

17. *Self-Dual metrics on 4-manifolds.* Book. LAP Lambert Academic Publishing.  
Saarbrücken, Germany, 2010. Available for purchase at *Amazon.com*.

#### PREPRINTS

18. *Minimal submanifolds and stability in Einstein manifolds. (with Kelekçi and Taşdemir).*  
E-print available at ArXiv:2406.03347. math.DG. 2024.
19. *Hyperkähler manifolds with circle actions and the Gibbons-Hawking ansatz (with J. Sawon).*  
E-print available at ArXiv:0910.0672. math.DG. 2010.
20. *A family of cohomological complex projective spaces.*  
E-print available at Arxiv:1810.09029. math.AG. 2018.
21. *Algebra of  $G_2$  manifolds.*  
Preprint available upon request.
22. *Minimal submanifolds of the Bianchi type IX metrics. (with Kelekçi and Taşdemir).*  
Preprint in preparation.
23. *Chern-Weil Theory applications to complex manifolds. (with Kelekçi and Taşdemir).*  
Preprint in preparation.
24. *On special submanifolds of the Page space 2 (with Kelekçi).*  
Ongoing work.
25. *Algebraic Topology of  $Spin_7$  Manifolds.*  
Ongoing work.
26. *Riemannian Submersions and the Page Metric. (with Ö. Kelekçi and C. Koca).*  
Ongoing work.
27. *Lecture notes on cohomogeneity one manifolds.*  
Preprint in preparation.
28. *Some new locally conformally flat 4-manifolds.*  
Preprint in preparation.

#### TALKS GIVEN

- Stony Brook Graduate Student Seminar: *The Jones Polynomial of a Knot.* Spring-01
- Stony Brook Graduate Student Seminar: *Stein Manifolds and Exotic Structures on  $\mathbb{R}^4$ .* 13-Dec-02
- Orta Doğu Teknik Üniversitesi, Ankara, Türkiye. Geometry-Topology Seminar: *Contact Geometry and the Classification of Legendrian/Transversal Knots, a Survey.* 22-May-02
- Stony Brook Graduate Student Seminar: *Scalar Flat Kähler Manifolds.* 03-Mar-04
- Orta Doğu Teknik Üniversitesi, Ankara, Türkiye. Geometry-Topology Seminar: *Self Dual Riemannian 4-Manifolds and Their Twistor Spaces.* 27-Dec-04
- Northeastern University, Boston MA, Graduate Seminar: *Twistor Spaces of Connected Sum of Projective Planes.* 22-Mar-05

- University of Münster, Germany. Int. conf. on global dif. geo. Satellite of ICM-Madrid. 18-Aug-06
- Michigan State University, Topology Seminar. 02-Apr-07
- Feza Gürsey Institute, İstanbul: *Two Lectures on Self-Dual 4-Manifolds*. Jun-07
- University of Wisconsin at Madison, Geometry-Topology Seminar. 07-Sep-07
- Gökova Geometry-Topology Conference, Turkey. 29-May-08
- University of Wisconsin at Madison, Geometry-Topology Seminar. 31-Oct-08
- Colorado State University, Geometry-Topology Seminar. 09-Jan-09
- University of Wisconsin at Madison, Geometry-Topology Seminar. 27-Mar-09
- Michigan State University, Topology Seminar. 13-Apr-09
- Michigan State University, Topology Seminar. 9-Apr-09
- Gökova Geometry-Topology Conference, Turkey. 26-May-09
- University of Rochester, New York. Geometry-Topology Seminar. 6-Nov-09
- University of Hamburg, Algebraic Geometry Seminar. 22-Jun-12
- Michigan State University, Topology Seminar. 18-Feb-13
- Michigan State University, Geometry Seminar. 26-Feb-13
- Vanderbilt University, Tennessee, Geometry Seminar. 8-Apr-13
- University of Minnesota, Differential Geometry and Symplectic Topology Seminar. 11-Apr-13
- Queensborough College, City University of New York (CUNY) Colloquium. 19-Apr-13
- University of Minnesota, Workshop on the Topology and Invariants of 4-Manifolds. 3-Aug-13
- 26. Ulusal Matematik Sempozyumu. Çağrılı genç araştırmacı. 9-Sep-13
- Humboldt Universität, Geometry Seminar, Berlin. 14-Nov-13
- University of Hamburg, Colloquium. 15-Nov-13
- AMS National Meeting 2014 at Baltimore, Maryland. 15-Jan-14
- University of Wisconsin at Madison, Geometry-Topology Seminar. 7-Mar-14
- FRG Workshop on Topology and Invariants of Smooth 4-manifolds. Miami. 13-Mar-14
- University of Rochester, New York. Geometry Seminar. 31-Mar-14
- Vanderbilt University, Tennessee, Geometry Seminar. 22-Apr-14
- AMS National Meeting 2015 at San Antonio, Texas. Jan-15
- Humboldt University, Geometric Analysis Seminar, Berlin. 29-Jul-15
- Invariants in Low Dimensional Geometry, Gazi Univ. 14-Aug-15
- German National Meeting, Hamburg University. 24-Sep-15
- Stony Brook University, New York. AMS Spring Eastern Sectional Meeting 20-Mar-16
- Max Planck Institute for Mathematics (MPIM), Bonn. Topology Seminar. 7-Mar-22
- University of Stuttgart, Workshop on Manifolds with Symmetries. 29-Mar-22
- University of Bonn. Oberseminar in Global Analysis and Operator Algebras. 8-Nov-22
- University of Stuttgart. Workshop on Einstein manifolds. 5-Oct-23
- Humboldt University. Differential Geometry and Geometric Analysis Seminar, Berlin. 24-Oct-24
- University of Stuttgart. Oberseminar Geometrie und Topologie. 5-Dec-24

## CONFERENCES AND WORKSHOPS

- Stony Brook: Around Dynamics, Conference in Honor of the 70th Birthday of John Milnor. Mar-01
- Perugia-Italy: Summer School , SMI. Aug-01
- University of Connecticut at Storrs: Ahlfors-Bers Colloquium. Oct-01
- IAS, Princeton: Holomorphic Curves and Low Dimensional Topology, Mar-02
- Gökova Geometry-Topology Conferences, Turkey. May-02-12
- CUNY Graduate Center NY: Einstein Chair Conference in honor of Dennis Sullivan. 20-21 Sep-02
- Harvard University, Boston: Current Developments in Mathematics. 15-17 Nov-02
- Courant Institute NY: AMS Meeting, Special Session on Contact and Symplectic Geometry. Apr-03
- Stony Brook University, New York: Ricci Flow and the Geometrization of 3-Manifolds.  
Simons lectures and informal sessions by Grigory Perelman. 21 Apr-02 May-03
- Cortona-Italy: Summer School on Kähler Geometry and Symmetric Spaces, SMI. 15-30 Aug-04
- Galatasaray University, İstanbul:  
School on Arithmetic and Geometry around Hypergeometric Functions. 13-25 Jun-05
- Columbia University: Conference in Honor of the 60th Birthday of John Morgan. 30-5 Apr-May-06
- Conference on Global Differential Geometry, Münster, Germany. 14-19 Aug-06
- Geometry Conference in honor of the 60th Birthday of Nigel Hitchin, Madrid. 4-8 Sep-06
- Colorado State University: Western Algebraic Geometry Seminar(WAGS). 20-21 Oct-07
- 23rd Annual Geometry Festival, Duke University, Durham, NC. 25-27 Apr-08
- The 7th conference on Geometry and Topology, Harvard University, Cambridge, MA. 2-4 May-08
- Nemmers Lectures by Simon Donaldson, Northwestern University, Chicago. Oct-08
- 24th Annual Geometry Festival in memory of Detlef Gromoll, Stony Brook, NY. 17-19 Apr-09
- Complex Geometry Conference Honoring Simon Donaldson, Northwestern University. 24-27  
Oct-09
- Workshop on General Relativity. Simons Center. Stony Brook, NY. 16-20 Nov-09
- Midwest Algebra, Geometry and their Interactions. MAGIC'10. Notre Dame. 23-25 Apr-10
- Summer school and conference on Geometric Analysis. ICTP, Trieste, Italy. Jun-12
- Cycles, Calibrations and Nonlinear Partial Differential Equations.  
Conference in honor of Blaine Lawson's 70th Birthday. Simons Center. New York. 22-28 Oct-12
- Metric Geometry and Applications in memory of Jianguo Cao. Notre Dame. Indiana. 14-17-Mar-13
- Rice University, Houston, Texas. 3-Manifolds in honor of John Hempel's retirement. 19-21-Apr-13
- Lectures on Kähler-Einstein metrics on Fano manifolds by Sir Simon Donaldson. New York. Apr-13
- ICMS Edinburgh: Summer School for Ricci curvature: limit spaces and Kähler geometry. 1-12-Jul-13
- Conference on Differential Geometry and Global Analysis. Leipzig. Germany. 7-11-Oct-13
- 21st Southern California Geometric Analysis Seminar (SCGAS). Irvine. Orange County. 22-23-Feb-14
- Smoky-Cascade Conference & AMS Session in Metric Geometry. Knoxville. Tennessee. 19-23-Mar-14
- An Invitation to Geometry and Topology via G2 , G2 Days. Imperial College & UCL. 7-17-Jul-14
- Workshop on Topology and Invariants of 4-manifolds. Simons Center, NY. 18-27-Aug-14
- New trends in differential geometry. Cagliari , Italy. 18-20-Sep-14
- 22nd Southern California Geometric Analysis Seminar (SCGAS). La Jolla. San Diego. 7-8-Feb-15

## TEACHING EXPERIENCE

### BONN UNIVERSITY

- MAT S4D3 *Graduate Seminar on Advanced Geometry: Advanced Minimal Submanifolds* Winter 2024
- MAT S4A2 *Graduate Seminar on RT: Rep. Theory Applications to Differential Geometry* Summer 2024
- MAT S4D1 *Graduate Seminar on Differential Geometry: Locally Conf. Kähler (LCK) manifolds.* Winter 23
- MAT S4D3 *Graduate Seminar on Advanced Geometry: Minimal Submanifolds.* Summer 2023

### TUNCELI UNIVERSITY

- IST 201 *Probability. (For computer science)* Spring 2016
- BMÜ 201 *Discrete Mathematics. (For computer science)* Fall 2015
- MAT 108 *Matematik 2 (Calculus).* Spring 2015
- MAT 107 *Matematik 1 (Calculus).* Fall 2014
- MAT 101 *Temel Matematik 1 (Calculus).* Fall 2012

### ODTÜ/METU

- MAT 473 *Ideals Varieties and Algorithms.* Fall 2010
- MAT 747 *Topics in Algebraic Geometry: Complex Differential Geometry.* Fall 2010
- MAT 730 *Algebraic Surfaces.* Spring 2011
- MAT 120 *Calculus of Several Variables.* Summer 2011
- MAT 119 *Calculus of One Variable.* Fall 2011

### ÇANKAYA UNIVERSITY

- MCS 476 *Differential Geometry.* Spring 2011

### ATILIM UNIVERSITY

- MAT 374 *Differential Geometry.* Spring 2011

### UNIVERSITY OF WISCONSIN AT MADISON

- MAT 551 *Elementary Topology (Point Set Topology).* Fall 2007-08
- MAT 340 *Linear Algebra, 2 Lectures.* Spring 2008-10
- MAT 211 *Calculus (Differential, Integral and Multivariable Calculus). 300 students. Twice.* Fall 2007-08
- MAT 541 *Modern Algebra (Abstract).* Spring 2009
- MAT 211 *Calculus (Differential, Integral and Multivariable Calculus). 250 students.* Spring 2009
- MAT 319 *Ordinary Differential Equations.* Fall 2009
- MAT 441 *Introduction to Modern Algebra (Abstract).* Fall 2009
- MAT 561 *Differential Geometry.* Spring 2010

### STONY BROOK UNIVERSITY, NEW YORK

- MAT 203 *Multivariable Calculus.* Instructor, Coordinator. Fall 2004
- MAT 211 *Linear Algebra.* Instructor, Coordinator. Spring 2005
- MAT 518 *Seminar on the Uses of Mathematics (Algorithms & Data Structures).* A Graduate course for Secondary School Teachers. Instructor, Coordinator, Course designer. Summer 2005
- MAT 132 *Calculus II, Integral Calculus & ODE.* Instructor, Coordinator. Summer 2006
- MAT 126 *Calculus B, Integral Calculus.* Instructor. Fall 2006

## AWARDS & ACHIEVEMENTS

- Awarded by distinction due to the success in the Mathematics Competition of İzmir Science High School (İFL). 1993
- ODTÜ, ÜRGÜP Summer Schools of Informatics-Computer Olympiads. TÜBİTAK. 1994,95
- Most successfully entering student to the Department of Mathematics , ODTÜ. 1996
- TÜBİTAK Turkish Science and Research Council Fellowship for 4 Years of Undergraduate Studies. 1996
- Most successful student of the Term : Fall 96, Spring 98, Fall 98.
- Van-Vleck Assistant Professorship of 3 years. University of Wisconsin at Madison, WI. 2007
- University Honored Instructors Award, Madison, WI. 29-Apr-09
- ÜAK Doçentlik. 30-May-13
- Yılın genç matematikcisi. Diyarbakır 26. Ulusal Matematik sempozyumu. 7-Sep-13
- BAGEP 2016.

## SYNERGISTIC ACTIVITIES

- Department Chair. 2014-16
- Founder of the Computer Engineering undergraduate program. 2012-13
- Organized the "Geometric Topology" session in National Meeting, Antalya 7-9 Sep 2015
- Scientific committee member for International conference on differential geometry. Galatasaray University, İstanbul. 19-23 Mar 14
- Panel reviewer for Tübitak grant proposals.
- Organized the Geometry & Topology Seminar of UW-Madison. 2008-09
- Refereeing to anonymous journals.
- Turkish Nationwide Mathematics Competition of High Schools , organizing committee. Head of the problem preparation committee. 1997
- ODTÜ Mathematics Society, Council of administration prime member, Vice Chair in 98. 1996-98

## ORGANIZING

- 7th Geometry-Topology Summer School 13-25 Sep 2021  
Nesin Mathematical Village, Selçuk, Şirince, İzmir. (Real meeting)
- 6th Geometry-Topology Online Summer School August 2-14, 2021  
Feza Gürsey Institute (FGE), İstanbul.
- 5th Geometry-Topology Online Summer School July 6-18, 2020  
İstanbul Center for Mathematical Sciences (IMBM), İstanbul.
- 4th Complex Geometry Winter School Jan 20-Feb 2, 2020  
Nesin Mathematical Village, Selçuk, Şirince, İzmir.
- 3rd Geometry-Topology Winter School Jan 6-19, 2020  
Nesin Mathematical Village, Selçuk, Şirince, İzmir.
- 2nd Geometry-Topology Summer School 9-22 Sep 2019  
Nesin Mathematical Village, Selçuk, Şirince, İzmir.
- 1st Week long program on G2 Geometry 23-29 July 2018  
Nesin Mathematical Village, Selçuk, Şirince, İzmir.

- Special sessions on Geometric Topology and Structures on Manifolds  
Turkish National Meeting, Akdeniz University, Antalya. 7-9 Sep 2015
- International conference on Invariants in Low Dimensional Geometry  
Gazi University, Ankara. 10-14 Aug 2015
- International conference on differential geometry  
Galatasaray University, İstanbul. 19-23 Mar 2014

## COMPUTERS

- *Pascal* and *C* Programming at advanced level.
- *Unix* and *Latex* knowledge at advanced level.
- Basic *HTML* knowledge.

## MEMBERSHIPS

- European Mathematical Society.
- American Mathematical Society.

## LANGUAGES

- English. *KPDS: 92.50*
- German. *Intermediate. B2 Level.*
- Spanish. *Basic reading.*

## REFERENCES

PROFESSOR CLAUDE LEBRUN  
Stony Brook University  
e-mail: [claude@math.sunysb.edu](mailto:claude@math.sunysb.edu)  
PROFESSOR MATTHIAS KRECK  
Hausdorff Institute for Mathematics, Bonn  
e-mail: [kreck@math.uni-bonn.de](mailto:kreck@math.uni-bonn.de)  
PROFESSOR BLAINE LAWSON  
Stony Brook University  
e-mail: [blaine@math.sunysb.edu](mailto:blaine@math.sunysb.edu)

ASSOCIATE PROFESSOR JUSTIN SAWON  
University of North Carolina at Chapel Hill  
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PROFESSOR JEFF VIACLOVSKY  
University of California at Irvine  
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University of Wisconsin at Madison  
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PROFESSOR BERNARD MASKIT (TEACHING)  
Stony Brook University  
e-mail: [bernie@math.sunysb.edu](mailto:bernie@math.sunysb.edu)