

CURRICULUM VITAE

WEIYONG HE

Department of Mathematics
University of Oregon
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Employment

University of Oregon, Eugene, OR

- Assistant Prof. Sept. 2009 -June, 2015
- Associate Prof. Sept. 2015 -present

University of British Columbia, Vancouver, BC

- PIMS postdoc, Sept. 2007-July 2009

Education

University of Wisconsin-Madison, Madison, WI

- Ph.D. in Mathematics, Sept. 2004-May 2007
- Dissertation : *On the Calabi flow*; Dissertation Advisor: Chen, Xiuxiong

University of Science and Technology of China, Hefei, China

- B. S. & M.S. in Mathematics, Sept., 1997-June, 2004
 - Master Advisor: Chen, Qing
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Research Interests: Geometric Partial Differential Equations and Differential Geometry.

- Riemannian geometry, Kähler geometry, Sasaki geometry, complex geometry and almost complex geometry.
 - Geometric evolution equations; the mean curvature flow, the Calabi flow.
 - Geometric Partial Differential Equations, including fully nonlinear equations, harmonic map, biharmonic map
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Grant: NSF grant, 2010-2013 (no cost extension to 2015), award no. 1005392; 2016-2019, award no. 1611797

Publications and Preprints:

- (1) Weiyong He, Jun Li, *Geometrical pluripotential theory on Sasaki manifolds*, arxiv.org/abs/1803.00687.
- (2) Xiuxiong Chen, Weiyong He, *A class of fully nonlinear equations*, arxiv.org/abs/1802.04985.
- (3) Weiyong He, *Scalar curvature and properness on Sasaki manifolds*, arxiv.org/abs/1802.03841.
- (4) Weiyong He, Ruiqi Jiang, *The regularity of a semilinear elliptic system with quadratic growth of gradient*, arxiv.org/abs/1802.01796
- (5) Weiyong He, *On Calabi's extremal metric and properness*, arxiv.org/abs/1801.07636.
- (6) Xiuxiong Chen, Tamas Darvas, Weiyong He, *Compactness of Kähler metrics with bounds on Ricci curvature and I functional*, arxiv.org/abs/1712.05095.
- (7) Weiyong He, *The Gursky-Streets equations*, arxiv.org/pdf/1707.04689.pdf
- (8) Weiyong He, Yu Zeng, *The Calabi flow with rough initial data*, arxiv.org/pdf/1701.06943.pdf
- (9) Weiyong, He, *Evolve nondegenerate two forms*, arxiv.org/pdf/1510.08798.pdf

- (10) Weiyong He, Yu Zeng, *Constant scalar curvature equation and the regularity of its weak solution*, arxiv.org/pdf/1705.01236.pdf, to appear in Comm. Pure Appl. Math.
- (11) Gregory Drugan, Weiyong He, Micah W. Warren, *Legendrian curve shortening flow in \mathbb{R}^3* , to appear in Comm. of Anal. Geom. (arxiv.org/pdf/1508.01186.pdf)
- (12) Lucio Bedulli, Weiyong He, Luigi Vezzoni, *Second order geometric flows on foliated manifolds*, to appear in J. Geom. Anal. (arxiv.org/pdf/1505.03258.pdf)
- (13) Tamas Davars, Weiyong He, *Geodesic rays and Kähler-Ricci flow on Fano manifolds*, Trans. Amer. Math. Soc. 369 (2017), no. 7, 5069-5085.
- (14) Weiyong He, *H-functional and Kahler-Ricci solitons*, Asian J. Math. 20 (2016), no. 4, 645-663.
- (15) Weiyong He, Song Sun, *Frankel conjecture and Sasaki geometry*, Adv. Math. 291 (2016), 912-960.
- (16) Weiyong He, *On the space of Kahler potentials*, Comm. Pure Appl. Math. 68 (2015), no. 2, 332-343.
- (17) Weiyong He, Song Sun, *Compact Sasaki manifolds with nonnegative transverse bisectional curvature*, Int. Math. Res. Not. IMRN 2015, no. 1, 99-118.
- (18) Weiyong He, *On convergence of the Calabi flow*, Proc. Amer. Math. Soc. 143 (2015), no. 3, 1273-1281.
- (19) Weiyong He, *On the transverse scalar curvature of a compact Sasaki manifold*, Complex Manifolds 1 (2014), 52-63.
- (20) Weiyong He, *Isometry group of Sasaki-Einstein metrics*, C. R. Math. Acad. Sci. Paris 352 (2014), no. 1, 71-73.
- (21) Weiyong He, *Sasaki-Ricci flow and compact Sasaki manifolds with positive transverse bisectional curvature*, J. Geom. Anal. 23 (2013), no. 4, 1876-1931.
- (22) Weiyong He, *Local solution and extension to the Calabi flow*, J. Geom. Anal. 23 (2013), no. 1, 270-282.
- (23) Xiuxiong Chen; Weiyong He, *The complex Monge-Ampere equation on compact Kähler manifolds*, Math. Ann. 354 (2012), no. 4, 1583-1600.
- (24) Xiuxiong Chen; Weiyong He, *The Calabi flow on Kähler surface with bounded Sobolev constant*, Math. Ann. 354 (2012), no. 1, 227-261.
- (25) Weiyong He, *Entire solutions to the Donaldson equation*, Pacific J. Math. 256 (2012), no. 2, 359-363.
- (26) Albert Chau; Jingyi Chen; Weiyong He, *Lagrangian Mean Curvature flow for entire Lipschitz graphs*, Calc. Var. Partial Differential Equations 44 (2012), no. 1-2, 199-220.
- (27) Weiyong He, *On the regularity of the complex Monge-Ampere equation*, Proc. Amer. Math. Soc. 140 (2012), no. 5, 1719-1727.
- (28) Xiuxiong Chen; Weiyong He, *The space of volume forms*, International Mathematics Research Notices, Vol. 2011, No. 5, pp. 967-1009.
- (29) Jingyi Chen; Weiyong He, *A note on singular time of mean curvature flow*, Math. Z. 266 (2010), no. 4, 921-931.
- (30) Xiuxiong Chen; Weiyong He, *The Calabi flow on toric Fano surfaces*, Math. Res. Lett. 17 (2010), no. 2, 231-241.
- (31) Xiuxiong Chen; Weiyong He, *On the Calabi flow*, Amer. J. Math. 130 (2008), no. 2, 539-570.
- (32) Weiyong He, *Remarks on the existence of bilaterally symmetric extremal Kähler metrics on $\mathbb{C}\mathbb{P}^2 \# 2\overline{\mathbb{C}\mathbb{P}^2}$* , IMRN 2007, no. 24.
- (33) Qing Chen; Xiuxiong Chen; Weiyong He, *Singular angles of weak limiting metrics under certain integral curvature bound*, Pacific J. Math. 231 (2007), no. 1, 35-49.

Service: I have served as:

- Colloquium Committee, 2009-2010
- Ph.D. Subcommittee of the Graduate Affairs Committee, Travel/Visitor Fund Committee, 2010-2011.
- Executive Committee, Advising Subcommittee of the Graduate Affairs Committee, Scholarship and Awards committee, 2011-2012.
- Travel/Visitor Fund Committee, 2012-2013.
- Executive Committee, Open Search Committee, 2013-2014.
- Teaching effectiveness Committee, UO Senate (University), Postdoc Search Committee, 2014-2015.
- Ph. D. Appointment Committee, UO Senate (University), 2015-2016
- Open Search Committee, Faculty Research Award committee (University), 2016-2017
- Graduate Affairs (Ph. D. Committee, Appointments), Teaching Effectiveness, Faculty Research Award committee (University), 2017-2018

Academic service: I have organized special session of *complex geometric analysis* in Spring Eastern Sectional Meeting State University of New York at Stony Brook, Stony Brook, NY March 19-20, 2016 (Together with Xiuxiong Chen, Ioana Suvaina). I have served as a panelist at an NSF panel, 2018.

Graduate students: Adam Welly (graduated). I also served as PHD committees of several graduates students at UO.

Referee/Reviewer: registered reviewer for Math. Review and Zentralblatt MATH. Amer. Jour. of Math, Jour. of Diff. Geom., Archiv der Mathematik, Communications in Contemporary Mathematics, Duke Math. Journal, Tohoku Math. Journal, Journal of Evolution equation, Math. Annalen, J. Math. Imaging Vision, Proc. of AMS, 2012 BIRS program, Journal of Symplectic geometry, Journal of Functional Analysis, Jour. of AMS, Geometry and Topology etc.

Invited Conference Talks

- 2014 AMS Western meeting, Special Session on Analysis and Topology in Special Geometries, University of New Mexico, April, 2014.
“Kahler-Ricci soliton and H-functional.”
- 2011 AMS Western meeting, Special Session on Geometric Evolution equations and related topics, University of Utah, Oct 22, 2011.
“Compact Sasaki manifolds with positive transverse bisectional curvature.”
- 2011 AMS Western meeting, Special Session in Geometric PDEs, Las Vegas, April 30th-May 1st, 2011.
“The complex Monge-Ampere equation on compact Kaehler manifolds .”
- 2010 CMS (Canadian Mathematical Society) winter meeting, section on Analysis and Geometry of Nonlinear Partial Differential Equations, Vancouver, BC, Dec. 4-6th 2010.
“The complex Monge-Ampere equation on compact Kaehler manifolds .”
- 2010 Spring Western Section Meeting, special section on Geometric Structures and PDEs Albuquerque, NM, April 17-18, 2010.
“The space of volume forms and Donaldson’s equation”
- The 15th International Symposium on Complex Geometry (Japanese), Sugadaira plateau, Japan, Oct. 30th- Nov. 2nd, 2009.
Invited speaker: *“The Calabi flow”.*
- Pacific Rim Complex Geometry Conference July 28 - August 1, 2008 Koreana Hotel, Seoul.

- **Invited speaker:** “*The Calabi flow*”.
- Workshop on Geometric Analysis, July, 2008, Wuhan University, Wuhan, China.
Invited speaker: “*The space of Volume forms*”.
- Extremal Kaehler Metrics and Kaehler-Ricci Flow, March 02— March 29 2008, Centro di Ricerca Matematica Ennio De Giorgi, Pisa.
Invited speaker: “*The Calabi flow on Kähler surface*”.
- Workshop of Geometric Evolution Equations, MSRI, Mar., 2007.
Invited speaker: “*On the Calabi flow*”.
- Nonlinear Elliptic Equation and Applications to Geometry, University of Science and Technology of China, Huangshan, May 2006.
Invited speaker: “*On the Calabi flow*”.

Colloquium/Seminar talks

- Shanghai Jiaotong University, Shanghai, China, *Calabi’s program, Chen’s conjecture and constant scalar curvature metrics on Kahler manifolds*, Aug 3, 2017
- University of Science and Technology of China, Hefei, China, *The Gursky-Streets equation*, Aug 1, 2017
- University of Science and Technology of China, Hefei, China, *Calabi’s program, Chen’s conjecture and constant scalar curvature metrics on Kahler manifolds*, Aug 1, 2017
- Hunan University, Changsha, China, *Calabi’s program, Chen’s conjecture and constant scalar curvature metrics on Kahler manifolds*, July 28, 2017
- University of British Columbia, Vancouver, BC, Canada, *The Calabi flow with rough initial data.*, PDE-Diff. Geom.-Math. Phys. Seminar, Nov. 2016.
- Simons Center for Geometry and Physics, SUNY Stony Brook University, *Evolve nondegenerate two forms*, April, 2015.
- University of British Columbia, Vancouver, BC, Canada, *The complex Monge-Ampere equations*, PDE-Diff. Geom.-Math. Phys. Seminar, Mar 2014.
- Simons Center for Geometry and Physics, SUNY Stony Brook University, *The space of Kahler potentials*, Graduate Workshop on Kahler Geometry, June 24-July 5, 2013.
- Centre de Recherches Mathematiques University de Montreal, Montreal, CA, *Frankel conjecture and Sasaki geometry*, Workshop “Extremal Kahler metrics”, May 2013.
- University of California, Irvine, *Frankel conjecture and Sasaki geometry*, differential geometry seminar, Oct. 2012
- University of California, Santa Cruz, *Frankel conjecture and Sasaki geometry*, colloquium, May 2012.
- Simons center for geometry and physics, Stony Brook, NY, *Frankel conjecture and Sasaki geometry*, complex geometry seminar, April 2012.
- University of Alabama-Birmingham, Birmingham, AL, *Frankel conjecture and Sasaki geometry*, colloquium, Mar. 2012.
- Simons center for geometry and physics, Stony Brook, NY, *The space of volume forms and Donaldson’s equation*, complex geometry seminar, Mar, 2011.
- Stanford University, Stanford, CA, *The complex Monge-Ampere equation on compact Kaehler manifolds*, Geometry seminar, Feb, 2011.
- University of British Columbia, Vancouver, BC, Canada, *The complex Monge-Ampere equation on compact Kaehler manifolds*, PDE-Diff. Geom.-Math. Phys. Seminar, Sep 2010.
- University of New Mexico, Albuquerque, NM, *The space of volume forms and Donaldson’s operator*, AMS 1059th meeting, geometric structure and PDE session, April 2010.

- University of Washington, Seattle, WA, *The Calabi flow*, Differential geometry seminar, Dec. 2009.
- University of California, Irvine, CA, *The space of Volume forms*, UCSD-UCI joint differential geometry seminar, Oct. 2009.
- University of Oregon, *Extremal metrics and the Calabi flow*, Colloquium talk, Mar, 2009.
- Stanford University, *The space of volume forms*, Geometry Seminar, Mar, 2009.
- Ohio State University, *The Lagrangian flow for entire Lipschitz graphs*, PDE Seminar, Feb, 2009.
- University of Wisconsin-Madison, *The Lagrangian flow for entire Lipschitz graphs*, PDE Seminar, Feb, 2009.
- University of Alberta, *Extremal metrics and the Calabi flow*, Colloquium talk, Jan, 2009.
- University of British Columbia, *The space of volume forms*, Differential Geometry - Mathematical Physics - Partial Differential Equations Seminars, Oct, 2008.
- Princeton University, *The Calabi flow on Kähler surface*, Differential geometry seminar, Oct, 2007.
- University of British Columbia, *The Calabi flow on Kähler surface*, Differential Geometry - Mathematical Physics - Partial Differential Equations Seminars, Oct, 2007.
- University of Wisconsin-Madison, *The Calabi flow on Kähler surface*, Geometry/Topology seminar, Oct, 2007.
- University of California-Irvine, *On the Calabi flow*, Differential geometry seminar, Nov. 2006.
- University of Iowa, *On the Calabi flow*, Differential geometry seminar, Oct. 2006.
- University of Wisconsin-Madison, *On the Calabi flow*, Geometric analysis seminar, Sept. 2006.