Stanford



Brian White

Robert Grimmett Professor of Mathematics, Emeritus

Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Mathematics

ADMINISTRATIVE APPOINTMENTS

- National Science Foundation Postdoctoral Research Fellow, Courant Institute, (1981-1983)
- Assistant Professor, Stanford University, (1983-1985)
- Associate Professor, Stanford University, (1985-1992)
- Professor, Stanford University, (1992- present)

HONORS AND AWARDS

- 7th highest score on Putnam Mathematics Competition (open to all US and Canadian undergraduates), The Mathematical Association of America (1975)
- Highest ranking Yale senior in sciences, Yale University (1977)
- Graduate Fellowship, National Science Foundation (1977)
- Postdoctoral Fellowship, National Science Foundation (1981-1983)
- Alfred P. Sloan Fellowship, Alfred P. Sloan Foundation (1985-1986)
- Presidential Young Investigator Award, National Science Foundation (1986-1991)
- Bing Teaching Award, Stanford University (1993)
- Guggenheim Fellowship, Guggenheim Foundation (1999)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, National Science Foundation (1983 - present)
- Director of undergraduate studies, Mathematics Department, Stanford University (2005)
- Math and Computational Sciences advisory board member, Stanford University

PROFESSIONAL EDUCATION

- Ph.D., Princeton University (1982)
- M.S., Princeton University (1981)
- B.S./M.S., Yale University (1977)

Teaching

COURSES

2024-25

- Differential Geometry: MATH 215C (Spr)

2023-24

- Differential Geometry: MATH 215C (Spr)
- Real Analysis: MATH 205A (Aut)

Publications

PUBLICATIONS

- **Nonfattening of Mean Curvature Flow at Singularities of Mean Convex Type** *COMMUNICATIONS ON PURE AND APPLIED MATHEMATICS*
  Hershkovits, O., White, B.
  2020; 73 (3): 558–80
- **A local regularity theorem for mean curvature flow with triple edges** *JOURNAL FUR DIE REINE UND ANGEWANDTE MATHEMATIK*
  Schulze, F., White, B.
  2020; 758: 281–305
- **Sharp entropy bounds for self-shrinkers in mean curvature flow** *GEOMETRY & TOPOLOGY*
  Hershkovits, O., White, B.
  2019; 23 (3): 1611–19
- **On the compactness theorem for embedded minimal surfaces in 3-manifolds with locally bounded area and genus** *COMMUNICATIONS IN ANALYSIS AND GEOMETRY*
  White, B.
  2018; 26 (3): 659–78
- **Helicoidal minimal surfaces of prescribed genus** *ACTA MATHEMATICA*
  Hoffman, D., Traizet, M., White, B.
  2016; 216 (2): 217-323
- **Subsequent singularities in mean-convex mean curvature flow** *CALCULUS OF VARIATIONS AND PARTIAL DIFFERENTIAL EQUATIONS*
  White, B.
  2015; 54 (2): 1457-1468
- **CURVATURES OF EMBEDDED MINIMAL DISKS BLOW UP ON SUBSETS OF C-1 CURVES** *JOURNAL OF DIFFERENTIAL GEOMETRY*
  White, B.
  2015; 100 (2): 389-394
- **PROPERLY EMBEDDED, AREA-MINIMIZING SURFACES IN HYPERBOLIC 3-SPACE** *JOURNAL OF DIFFERENTIAL GEOMETRY*
  Martin, F., White, B.
  2014; 97 (3): 515-544
- **THE ROUND SPHERE MINIMIZES ENTROPY AMONG CLOSED SELF-SHRINKERS** *JOURNAL OF DIFFERENTIAL GEOMETRY*
  Colding, T. H., Ilmanen, T., Minicozzi, W. P., White, B.
  2013; 95 (1): 53-69
- **Topological change in mean convex mean curvature flow** *INVENTIONES MATHEMATICAE*
  White, B.
  2013; 191 (3): 501-525
- **Sequences of embedded minimal disks whose curvatures blow up on a prescribed subset of a line** *COMMUNICATIONS IN ANALYSIS AND GEOMETRY*

Hoffman, D., White, B.
2011; 19 (3): 487-502

- **AXIAL MINIMAL SURFACES IN S-2 x R ARE HELICOIDAL** *JOURNAL OF DIFFERENTIAL GEOMETRY*
  Hoffman, D., White, B.
  2011; 87 (3): 515-523
- **The maximum principle for minimal varieties of arbitrary codimension** *COMMUNICATIONS IN ANALYSIS AND GEOMETRY*
  White, B.
  2010; 18 (3): 421-432
- **WHICH AMBIENT SPACES ADMIT ISOPERIMETRIC INEQUALITIES FOR SUBMANIFOLDS?** *JOURNAL OF DIFFERENTIAL GEOMETRY*
  White, B.
  2009; 83 (1): 213-228
- **CURRENTS AND FLAT CHAINS ASSOCIATED TO VARIFOLDS, WITH AN APPLICATION TO MEAN CURVATURE FLOW** *DUKE MATHEMATICAL JOURNAL*
  White, B.
  2009; 148 (1): 41-62
- **The geometry of genus-one helicoids** *COMMENTARII MATHEMATICI HELVETICI*
  Hoffman, D., White, B.
  2009; 84 (3): 547-569
- **Genus-one helicoids from a variational point of view** *COMMENTARII MATHEMATICI HELVETICI*
  Hoffman, D., White, B.
  2008; 83 (4): 767-813
- **ON THE NUMBER OF MINIMAL SURFACES WITH A GIVEN BOUNDARY** *Conference on Differential Geometry, Mathematical Physics, Mathematics and Society*
  Hoffman, D., White, B.
  SOC MATHEMATIQUE FRANCE.2008: 207–24
- **A local regularity theorem for mean curvature flow** *Annals of Mathematics*
  White, B.
  2005; 161: 1487–1519
- **The nature of singularities in mean curvature flow of mean-convex sets** *Journal of the American Mathematical Society*
  White, B.
  2003; 16: 123-138
- **Evolution of curves and surfaces by mean curvature** *Proceedings of the International Congress of Mathematicians*
  White, B.
  2002
- **Embeddedness of minimal surfaces with total boundary curvature at most 4π** *Annals of Mathematics*
  White, B.
  2002; 155: 209–234
- **The size of the singular set in mean curvature flow of mean-convex surfaces** *Journal of the American Mathematical Society*
  White, B.
  2000; 13: 665-695
- **Rectifiability of flat chains** *Annals of Mathematics*
  White, B.
  1999; 150: 165-184
- **The deformation theorem for flat chains** *Acta Mathematica*
  White, B.
  1999; 183: 255-271

- **The mathematics of F. J. Almgren, Jr** *Journal of Geometric Analysis*
  White, B.
  1998; 8: 681-702
- **A new proof of Federer's structure theorem for k-dimensional sets in R^n** *Journal of the American Mathematical Society*
  White, B.
  1998; 11: 693–701
- **Soap-films bounded by non-closed curves** *Journal of Geometric Analysis*
  Drachman, J., White, B.
  1998; 8: 239–250
- **Classical area minimizing surfaces with real analytic boundaries** *Acta Mathematica*
  White, B.
  1997; 179: 295-305
- **The mathematics of F. J. Almgren, Jr** *Notices of the AMS - American Mathematical Society*
  White, B.
  1997; 44 (10): 1451-1456
- **Stratification of minimal surfaces, mean curvature flows, and harmonic maps** *Journal fur die Reine und Angewandte Mathematik*
  White, B.
  1997; 488: 1-35
- **Existence of least-energy configurations of immiscible fluids** *Journal of Geometric Analysis*
  White, B.
  1996; 6: 151–161
- **Half of enneper's surface minimizes area** *Geometric analysis and the calculus of variations for Stefan Hildebrandt*
  White, B.
  edited by Jost, J.
  International Press.1996: 361–368
- **The topology of hypersurfaces moving by mean curvature** *Communications in analysis and geometry*
  White, B.
  1995; 3: 317–333
- **The bridge principle for unstable and for singular minimal surfaces** *Communications in analysis and geometry*
  White, B.
  1994; 2: 513-532
- **Some questions of De Giorgi about mean curvature flow of triply periodic surfaces** *Motion by Mean Curvature*
  White, B.
  edited by Buttazzo, B., Visintin, A.
  de Gruyter.1994: 210–213
- **A strong minimax property of nondegenerate minimal submanifolds** *Journal fur die Reine und Angewandte Mathematik*
  White, B.
  1994; 457: 203–218
- **The structure of branch points in area minimizing surfaces and in pseudoholomorphic curves** *Annals of Mathematics*
  Micallef, M., White, B.
  1994; 139: 35-85
- **Partial regularity of mean-convex hypersurfaces flowing by mean curvature** *International Mathematics Research Notice*
  White, B.
  1994; 4: 185-192
- **The bridge principle for stable minimal surfaces** *Calculus of Variations and Partial Differential Equations*
  White, B.

1994; 2: 405-425

- **The Space of Minimal Annuli Bounded by an Extremal Pair of Planar Curves** *Communications in Analysis and Geometry*
  Meeks, III, W. H., White, B.
  1993; 1: 415-437
- **On the topological type of minimal submanifolds** *Topology*
  White, B.
  1992; 31: 445-448
- **Nonunique tangent maps at isolated singularities of harmonic maps** *Bulletin of the American Mathematical Society*
  White, B.
  1992; 26: 125-129
- **The space of minimal submanifolds for varying riemannian metrics** *Indiana University Mathematics Journal*
  White, B.
  1991; 40: 161-200
- **Existence of smooth embedded surfaces of prescribed topological type that minimize parametric even elliptic functionals on three-manifolds** *Journal of Differential Geometry*
  White, B.
  1991; 33: 413-443
- **Minimal Surfaces Bounded by Convex Curves in Parallel Planes** *Commentarii Mathematici Helvetici*
  Meeks, III, W. H., White, B.
  1991; 66: 263-278
- **A rigidity theorem for properly embedded minimal surfaces in R^3** *Journal of Differential Geometry*
  Choi, H., Meeks, III, W. H., White, B.
  1990; 32: 65-76
- **A strong maximum principle for varifolds that are stationary with respect to even parametric elliptic functionals** *Indiana University Mathematics Journal*
  Solomon, B., White, B.
  1989; 38: 683–691
- **Every three-sphere of positive ricci curvature contains a minimal embedded torus** *Bulletin (New Series) of the American Mathematical Society*
  White, B.
  1989; 21: 71-75
- **The rate of convergence of a harmonic map at a singular point** *Mathematische Annalen*
  Gulliver, R., White, B.
  1989; 283: 539-549
- **Some Recent Developments in Differential Geometry** *Mathematical Intelligencer*
  White, B.
  1989; 11: 41–47
- **Every three-sphere of positive ricci curvature contains a minimal embedded torus** *Bulletin (New Series) of the American Mathematical Society*
  White, B.
  1989; 21: 71-75
- **The rate of convergence of a harmonic map at a singular point** *Mathematische Annalen*
  Gulliver, R., White, B.
  1989; 283: 539-549
- **Complete surfaces of finite total curvature** *Journal of Differential Geometry*
  White, B.
  1988; 28: 359–360
- **Homotopy classes in sobolev spaces and the existence of energy minimizing maps** *Acta Mathematica*

White, B.
1988; 160: 1–17

- **Curvature estimates and compactness theorems in 3-manifolds for surfaces that are stationary for parametric elliptic functionals** *Inventiones Mathematicae*
  White, B.
  1987; 88: 243–256
- **The space of m-dimensional surfaces that are stationary for a parametric elliptic integrand** *Indiana University Mathematics Journal*
  White, B.
  1987; 36: 567–602
- **A regularity theorem for minimizing hypersurfaces modulo p** *Proceedings of Symposia in Pure Mathematics*
  White, B.
  1986; 44: 413–427
- **Infima of energy functionals in homotopy classes of mappings** *Journal of Differential Geometry*
  White, B.
  1986; 23: 127–142
- **Generic regularity of unoriented two-dimensional area minimizing surfaces** *Annals of Mathematics*
  White, B.
  1986; 124: 403
- **Homotopy classes in sobolev spaces and energy minimizing maps** *Bulletin of the American Mathematical Society*
  White, B.
  1985; 13: 166–168
- **Regularity of singular sets in immiscible fluid interfaces and in solutions to other plateau-type problems** *Proceedings of the Centre for Mathematical Analysis*
  White, B.
  1985: 244-249
- **Mappings that minimize area in their homotopy classes** *Journal of Differential Geometry*
  White, B.
  1984; 20: 433–446
- **The least area bounded by multiples of a curve** *Proceedings from the American Mathematical Society*
  White, B.
  1984; 90: 230–232
- **Tangent cones to 2-dimensional area-minimizing integral currents are unique** *Duke Mathematical Journal*
  White, B.
  1983; 50: 143–160
- **Existence of least-area mappings of N-dimensional domains** *Annals of Mathematics*
  White, B.
  1983; 118 : 179–185
- **Regularity of area-minimizing hypersurfaces at boundaries with multiplicity** *Annals of Mathematics Studies*
  White, B.
  1983 ; 103: 293–301
- **The structure of minimizing hypersurfaces mod 4** *Inventiones Mathematicae*
  White, B.
  1979 ; 53: 45–58