

Curriculum Vitae: Bradley Miles Stougaard Hansen

Current Position:

Professor,
(07/10 –)

Dep. of Physics & Astronomy,
University of California, Los Angeles

Previous Positions Held:

Associate Professor,
(07/06 – 06/10)

Dep. of Physics & Astronomy,
University of California, Los Angeles

Assistant Professor,
(07/02 – 06/06)

Dep. of Physics & Astronomy,
University of California, Los Angeles

Hubble Research Fellowship,
(01/02 – 06/02)

Dep. of Physics & Astronomy,
University of California, Los Angeles

Hubble Research Fellowship,
(9/99 – 12/01)

Department of Astrophysical Sciences
Princeton University

Junior Research Associate
(7/96 – 8/99)

Canadian Institute for Theoretical Astrophysics
University of Toronto

Education:

(1991-1996) California Institute of Technology (Astronomy)

PhD 1996 Advisor: E. S. Phinney

Thesis: *The Ages, Speeds and Offspring of Pulsars*

(1986-1991) University of Natal, Durban, South Africa (Physics)

Bsc (1989) Msc (1991) Advisor: M. A. Hellberg

Thesis: *Magnetic Reconnection in the Tokoloshe Tokamak*

Personal Information:

Date of birth: 17 April 1968

Place of birth: Durban, South Africa

Nationality: South African

Phone: (310) 825-5924

email: hansen@astro.ucla.edu

Web: <http://www.astro.ucla.edu/~hansen>

Honours & Awards:

| | |
|-----------|--|
| 2009–2011 | † NASA HST Grant: GO-57013 (\$ 80,217) |
| 2009–2011 | † NASA HST Grant: GO-79070 (\$ 17,288) |
| 2009–2010 | * Spitzer Telescope Grant: GO-50624 (\$ 82,370) |
| 2008–2011 | *NASA ATP Grant: NNX08AG85G (\$ 235,319) |
| 2005–2006 | *Spitzer Telescope Grant: GO-20101 (\$17,530) |
| 2005–2006 | †NASA HST Grant: GO-10424.08 (\$ 97,232) |
| 2004–2006 | Alfred P. Sloan Foundation Fellowship (\$ 40,000) |
| 2004–2006 | *NASA ATP Grant: ATP03-0000-0084 (\$ 181,977) |
| 2004–2005 | *Spitzer Telescope Grant: GO-3309 (\$ 9,000) |
| 2004–2009 | †Space Interferometry Mission grant (\$ 27,000) |
| 2003-2008 | †NASA Astrobiology Institute UCLA Node |
| 2001–2002 | †NASA HST Grant: GO-8679 (\$ 50,000) |
| 1999–2002 | Hubble Postdoctoral Research Fellowship |
| 1990–1991 | Foundation for Research and Development Masters Scholarship |
| 1989 | Foundation for Research and Development Honours Scholarship Physics Honours Prize (shared), Univ. of Natal, Durban |
| 1988 | Physics Major Prize, Univ. of Natal, Durban Mathematics Major Prize, Univ. of Natal, Durban Univ. of Natal Undergraduate Scholarship |

* denotes principal investigator on original science proposal

† denotes co-investigator on original science proposal

Activities & Memberships:

Member: American Astronomical Society
Academy of Magical Arts, Hollywood

Peer Review referee for the following journals/organisations:

*Nature, Science, Astrophysical Journal, Astronomy and Astrophysics,
Monthly Notices of the Royal Astronomical Society, Canada-France-Hawaii Telescope*

Member, Scientific Conference Organising Committee:

Stellar Collisions, Mergers and their Consequences
American Museum of Natural History, New York, May 2000

Formation and Evolution of Globular Clusters
Institute for Theoretical Physics, Santa Barbara, Jan 2003

Formation of Planets around Stellar Remnants
Arecibo Observatory, Puerto Rico, Jan 20120

co-Investigator, UCLA Node of Astrobiology Institute

NSF Grant Review Panel 2005 (Compact Objects)

NASA Origins Grant Review Panel 2008

Hubble Telescope Review: Galactic Panel 2006,2007,2012

Spitzer Telescope Review: Galactic Panel 2007, 2008

Keck Telescope Galactic Panel 2009–2011

Teaching Experience:

UCLA

- 2010-2011 Astro 5: Life in the Universe (undergrad GE)
Astro 82: Introductory Astrophysics (undergrad majors)
- 2009-2010 Astro 272: Stellar Structure (graduate)
MS285: Exoplanets (graduate; joint with ESS dept)
- 2008-2009 Astro 5: Life in the Universe (undergrad GE)
Astro 82: Introductory Astrophysics (undergrad majors)
- 2007-2008 Astro 5: Life in the Universe (undergrad GE)
Astro 272: Stellar Structure (graduate)
- 2006-2007 Astro 5: Life in the Universe (undergrad GE)
Astro 82: Introductory Astrophysics (undergrad majors)
- 2005-2006 Astro 5: Life in the Universe (undergrad GE)
Astro 82: Introductory Astrophysics (undergrad majors)
- 2004-2005 Astro 127: Stellar Structure (senior majors)
Astro 270: Astrophysical Fluid Dynamics (graduate)
- 2003-2004 Astro 5: Life in the Universe (undergrad GE)
Astro 272: Stellar Structure (graduate)
- 2002-2003 Astro 82: Introductory Astrophysics (undergrad majors)
Astro 270: Astrophysical Fluid Dynamics (graduate)
- 2002– Supervision of graduate research
Graduated PhDs: Eugene Chen (2009), Elliot Koch (2009), Steve Berukoff (2009)

Toronto

- 1998 Minicourse on Compact Objects (graduate)
- 1998–2001 Supervision of undergraduate research

Caltech

- 1992–1995 Graduate Teaching Assistant

University of Natal

- 1989–1990 Undergraduate Laboratory Instructor

Administrative Experience:

Department of Physics

- 2010-2012 Astronomy Graduate Admissions Committee
- 2008 – 2009 Astronomy Colloquium Committee
Astronomy Graduate Admissions Committee
Undergraduate Advisor (Astronomy)
- 2006 – 2008 Chair, Astronomy Graduate Admissions Committee
- 2004 – 2007 Physics Colloquium Committee
Appointments & Strategic Planning Committee
Undergraduate Advisor (Astronomy)
- 2003 – 2004 Committee on Academic Affairs
Undergraduate Advisor (Astronomy)
Astronomy Strategic Plan Committee
- 2002 – 2003 Graduate Admissions Committee
Astronomy Colloquium Chairman (winter & spring quarters)

Institute of Geophysics & Planetary Physics

- 2007 – 2009 Graduate Student Fellowship Committee
- 2004 – 2005 Awards Committee
- 2002 – 2004 Researchers Committee

Refereed Publications:

A Deep, Wide-field, and Panchromatic View of 47 Tuc and the SMC with HST: Observations and Data Analysis Methods [70]

J. S. Kalirai et al.,

Astronomical Journal, 143, 11 (2012)

On collisional capture rates of irregular satellites around the gas-giant planets and the minimum mass of the solar nebula [69]

E. Koch & **B. Hansen**,

Monthly Notices of the Royal Astronomical Society, 416, 1274

High Resolution, Differential, Near-Infrared Transmission Spectroscopy of GJ 1214b [68]

I. J. Crossfield, T. Barman & **B. Hansen**

Astrophysical Journal, 736, 1323 (2011)

Cooling Curves and Chemical Evolution Curves of Convective Mixing in White Dwarf Stars [67]

E.Y.Chen & **B. Hansen**

Monthly Notices of the Royal Astronomical Society, 413, 2827 (2011)

Calibration of Equilibrium Tide Theory for Extrasolar Planet Systems [66]

B.M.S.Hansen

Astrophysical Journal, 723, 285 (2010)

A New 24 micron Phase Curve for upsilon Andromedae b [65]

I.J.Crossfield, **B. M. S. Hansen**, et al.,

Astrophysical Journal, 723, 1436 (2010)

A search for molecules in the atmosphere of HD189733b [64]

J. R. Barnes et al.

Monthly Notices of Royal Astronomical Society, 401, 445 (2009)

The Masses of Population II White Dwarfs [63]

J. S. Kalirai, et al.

Astrophysical Journal, 705, 408 (2009)

Formation of the terrestrial planets from a narrow annulus [62]

B.M.S. Hansen

Astrophysical Journal, 703, 1131 (2009)

The Pulsar Planets as a test case of terrestrial planet assembly [61]

B.M.S. Hansen, H.-Y. Shih & T. Currie

Astrophysical Journal, 691, 382 (2009)

Mergers of Black Holes in the Galactic Center [60]

F. E. Koch & **B. Hansen**

Astrophysical Journal, 687, 252 (2008)

On the absorption and redistribution of energy in irradiated planets [59]

B. Hansen

Astrophysical Journal Supplements, 179, 484 (2008)

On signatures of atmospheric features in thermal phase curves of hot jupiters [58]

E. Rauscher, K. Menou, J. Cho, S. Seager & **B. Hansen**

Astrophysical Journal, 681, 1646 (2008)

Deep ACS Imaging in the Globular Cluster NGC 6397: The Cluster Color Magnitude Diagram [57]

H.B. Richer et al.

Astronomical Journal, 135, 2141 (2008)

Deep ACS Imaging in the Globular Cluster NGC 6397: Dynamical Models [56]

J. R. Hurley et al.

Astronomical Journal, 135, 2129 (2008)

Deep ACS Imaging in the Globular Cluster NGC 6397: Reduction Methods [55]

J. Anderson et al.

Astronomical Journal, 135, 2114 (2008)

The Initial-Final Mass Relation: First Constraints at the Low Mass End [54]

J. Kalirai, **B. Hansen**, D. Kelson, D. Reitzel, R. Rich & H. Richer

Astrophysical Journal, 676, 594 (2008)

Atmospheric Circulation of Close-In Extrasolar Giant Planets I: Global, Barotropic, Adiabatic Simulations [53]

J. Cho, K. Menou, **B. Hansen** & S. Seager

Astrophysical Journal 675, 817 (2008)

High Velocity A&B Stars should be slow rotators [52]

B. Hansen

Astrophysical Journal, 671, L33 (2007)

The chemical composition of an extrasolar minor planet [51]

B. Zuckerman, D. Koester, C. Melis, **B. Hansen** & M. Jura

Astrophysical Journal, 671, 872 (2007)

Two Classes of Hot Jupiters [50]

B. Hansen & T. Barman

Astrophysical Journal, 671, 861 (2007)

Stellar Evolution in NGC 6791: Mass Loss and formation of Low Mass White Dwarfs [49]

J. Kalirai, P. Bergeron, **B. Hansen**, D. Kelson, D. Reitzel, R. Rich & H. Richer.

Astrophysical Journal, 671, 748 (2007)

The White Dwarf Cooling Sequence of NGC 6397 [48]

B. Hansen, J. Anderson et al.

Astrophysical Journal, 671, 380 (2007)

Cool Customers in the Stellar Graveyard IV: [47]

J. Debes, S. Sigurdsson & **B. Hansen**

Astrophysical Journal, 134, 1662 (2007)

The Evolution of Protoplanetary Disks around Millisecond Pulsars [46]

T. Currie & **B. Hansen**

Astrophysical Journal, 666, 1232 (2007)

Hot Jupiter Variability in Eclipse Depth [45]

E. Rauscher, K. Menou, J. Cho, S. Seager, & **B. Hansen**

Astrophysical Journal Letters, 662, L115 (2007)

Toward Eclipse Mapping of Hot Jupiters [44]

E. Rauscher, K. Menou, S. Seager, D. Deming, J. Cho & **B. Hansen**

Astrophysical Journal, 664, 1119 (2007)

The Space Motion of the Globular Cluster NGC 6397 [43]

J. Kalirai, J. Anderson et al.

Astrophysical Journal, 657, L93 (2007)

The Phase-Dependent Infra-Red Brightness of the Extrasolar Planet ν Andromeda b [42]

J. Harrington, **B. Hansen**, S. Luszcz, D. Deming, S. Seager, K. Menou, J. Cho & L. J. Richardson

Science, 314, 623 (2006)

Probing the Faintest Stars in a Globular Cluster [41]

H.B.Richer & many more
Science, 313, 935 (2006)

Star Cluster Dynamics in the Galactic Center [40]

S. Berukoff & **B. Hansen**
Astrophysical Journal 650, 901 (2006)

The Galaxy Hosts and Large-Scale Environments of Short-Hard Gamma-Ray Bursts [39]

J. Prochaska, J. Bloom, et al
Astrophysical Journal Letters, 642, 989 (2006)

A Spitzer Search for Infrared Excesses around Young Massive White Dwarfs [38]

B. Hansen, S. R. Kulkarni & S. Wiktorowicz
Astronomical Journal 131, 1106 (2006)

White Dwarfs in NGC 6791: Avoiding the Helium Flash [37]

B. Hansen
Astrophysical Journal 635, 522 (2005)

On the Dayside Thermal Emission of Hot Jupiters [36]

S. Seager, L. J. Richardson, **B. Hansen**, K. Menou, J. Cho & D. Deming
Astrophysical Journal 632, 1122 (2005)

The Dearth of Massive, Helium-Rich White Dwarfs in Young Open Star Clusters [35]

J. Kalirai, H. Richer, **B. Hansen**, D. Reitzel & R. Rich
Astrophysical Journal Letters, 618, L129 (2005)

The Initial-Final Mass Relationship: Spectroscopy of White Dwarfs in NGC 2099 (M37) [34]

J. Kalirai, H. Richer, D. Reitzel, **B. Hansen**, R. Rich, G. Fahlman, B. Gibson & T. von Hippel
Astrophysical Journal Letters, 618, L123 (2005)

HST observations of the white dwarf cooling sequence of the globular cluster Messier 4 [33]

Hansen, B., Richer, H. B., et al.,
Astrophysical Journal Supplements, 155, 551 (2004)

The Astrophysics of Cool White Dwarfs [32]

Hansen, B.
Physics Reports, 399, 1 (2004)

Concerning the White Dwarf Cooling Age of M4: A Reply to De Marchi et al. [31]

Richer, H. B., et al.,
Astronomical Journal, 127, 2904 (2004)

Hubble Space Telescope Observations of the Main Sequence of M4 [30]

Richer, H. B. et al.,
Astronomical Journal, 127, 2771 (2004)

Cool White Dwarfs Revisited: New Spectroscopy and Photometry[29]

S. Salim, R. M. Rich, **B. M. S. Hansen**, L. V. E. Koopmans, B. R. Oppenheimer & R. D. Blandford,
Astrophysical Journal, 601, 1075 (2004)

The Galactic Inner Halo: Searching for White Dwarfs and measuring the fundamental Galactic Constant, V0/R0 [28]

J. S. Kalirai, et al.,
Astrophysical Journal, 601, 277 (2004)

Searching for variability in the globular cluster Messier 4 [27]

R. D. Ferdman, et al.,
Astronomical Journal, 127, 601 (2004)

The need for a second black hole in the Galactic Center[26]

B. M. S. Hansen & M. Milosavljevic,
Astrophysical Journal, 593, L77 (2003)

A young white dwarf companion to pulsar B1620-26: Evidence for early planet formation [25]

S. Sigurdsson, H. B. Richer, **B. M. S. Hansen**, I. H. Stairs & S. E. Thorsett,
Science, 301, 193 (2003)

Cool White Dwarfs [24]

B. M. S. Hansen & J. Liebert,
Annual Reviews of Astronomy & Astrophysics, 41, 465 (2003)

The changing face of the extrasolar giant planet HD209458b [23]

J. Cho, K. Menou, **B. M. S. Hansen** & S. Seager
Astrophysical Journal, 587, L117 (2003)

Weather Variability of Close-in Giant Planets [22]

K. Menou, J. Cho, S. Seager & **B. M. S. Hansen**,
Astrophysical Journal, 587, L113 (2003)

Helium Core White Dwarfs in Globular Clusters [21]

B. M. S. Hansen, V. Kalogera & F. A. Rasio,
Astrophysical Journal, 586, 1364 (2003)

Type Ia Supernovae and High Velocity White Dwarfs [20]

B. M. S. Hansen,
Astrophysical Journal, 582, 915 (2003)

The White Dwarf Cooling Sequence of the Globular Cluster Messier 4 [19]

B. M. S. Hansen et al.,
Astrophysical Journal, 574, L155 (2002)

The Main Sequence and Mass Function of the Globular Cluster Messier 4 [18]

H. B. Richer et al.,
Astrophysical Journal, 574, L151 (2002)

Sloan Digital Sky Survey: Early Data Release [17]

C. Stoughton et al.,
Astronomical Journal, 123, 485 (2002)

Halo White Dwarfs, Thick Disks and a Sanity Check. [16]

B. M. S. Hansen,
Astrophysical Journal, 558, L39 (2001)

Stellar Pollution in the Solar Neighbourhood [15]

N. Murray, B. Chaboyer, P. Arras, **B. Hansen**, & R. W. Noyes,
Astrophysical Journal, 555, 801 (2001)

Radio and X-ray signatures of merging neutron stars [14]

B. M. S. Hansen & M. Lyutikov,
Monthly Notices of Royal Astronomical Society, 322, 695 (2001)

A New Very Cool White Dwarf discovered by the Sloan Digital Sky Survey [13]

H. C. Harris, **B. M. S. Hansen**, et al.,
Astrophysical Journal, 549, L109 (2001)

Isochrones and Luminosity Functions for Old White Dwarfs [12]

H. B. Richer, **B. Hansen**, et al.,
Astrophysical Journal, 529, 318 (2000)

Early Planet Formation as a trigger for further planet formation [11]

P. J. Armitage & **B. M. S. Hansen**,

Nature, 402, 633 (1999)

The Origin of Primordial Dwarf Stars and Baryonic Dark Matter [10]

B. M. S. Hansen,

Astrophysical Journal Letters, 517, L39 (1999)

Cooling Models for Old White Dwarfs [9]

B. M. S. Hansen,

Astrophysical Journal, 520, 680 (1999)

On the Frequency and Remnants of Hypernovae [8]

B. M. S. Hansen,

Astrophysical Journal Letters, 512, L117 (1999)

Neutron Star Retention and Millisecond Pulsar Production in Globular Clusters [7]

M. B. Davies & **B. M. S. Hansen**,

Monthly Notices of Royal Astronomical Society, 301, 15 (1998)

Old and Blue White Dwarfs as a detectable source of microlensing events [6]

B. M. S. Hansen,

Nature, 394, 860 (1998)

Gamma Ray Bursts from Stellar Collisions [5]

B. M. S. Hansen & C. Murali,

Astrophysical Journal Letters, 505, L15 (1998)

Migrating Planets [4]

N. Murray, **B. Hansen**, M. Holman & S. Tremaine,

Science, 279, 69 (1998)

Stellar Forensics: II - Millisecond Pulsar Binaries [3]

B.M.S.Hansen & E.S.Phinney,

Monthly Notices of Royal Astronomical Society, 294, 569 (1998)

Stellar Forensics: I - Cooling Curves [2]

B.M.S.Hansen & E.S.Phinney,

Monthly Notices of Royal Astronomical Society, 294, 557 (1998)

The Pulsar Kick Velocity Distribution [1]

B.M.S.Hansen & E.S.Phinney,

Monthly Notices of Royal Astronomical Society, 291, 569 (1997)

Popular Articles

Discoveries from the Stellar Graveyard [2]

B. M. S. Hansen

in Hubble 2004: Science Year in Review, pg 18–23 (2004)

A Bright Future for Dark Matter [1]

B.M.S.Hansen

Nature, 403, 30 (2000)

Circulars/Telegrams

GRB 0507024: Secure Host Redshift from Keck [1]

J.X.Prochaska, J.S.Bloom, H.W.Chen, **B. Hansen**, J.S.Kalirai, M.Rich & H. B. Richer,
GCN 3700:

Recently Submitted

Migration then assembly: Formation of Neptune Mass planets inside 1 AU

B. Hansen & N. Murray

Astrophysical Journal, arXiv:1105.2050

Ground based spectroscopy of WASP-12b

I. J. Crossfield, **B. Hansen** & T. Barman

Astrophysical Journal, arXiv:1201.1023

Equilibrium Tide Theory for Extrasolar Planet Systems II

B. Hansen

Astrophysical Journal, arXiv:1204.3903

Publications in Conference Proceedings:

Exceptional Stars: Origins, Companions, Masses & Planets

S.R.Kulkarni, B. Hansen, E. S. Phinney, M. van Kerkwijk & G. Vasisht
in *Science with the Space Interferometry Mission: Project Summaries*

Theoretical Implications of White Dwarf Observations

B.M.S.Hansen, in

Online Proceedings: *KITP Workshop of Globular Clusters*

http://online.kitp.ucsb.edu/online/clusters_c03/hansen/

Stellar Collisions & Pulsar Planets

B.M.S.Hansen, in

Stellar Collisions, Mergers & their Consequences, ed. M.Shara (2000)

/astro-ph/0008226

Old White Dwarfs as a Microlensing Population,

B.M.S.Hansen, in

Microlensing 2000, ed. J.Menzies & P.Sackett (2000)

/astro-ph/0004133

Millisecond Pulsar Ages & Spin Periods

B.M.S.Hansen, in

Neutron Stars & Pulsars: Thirty Years after the discovery, ed. N.Shibazaki et al, pg 191 (1998)

The Pulsar Planet Production Process

E.S. Phinney, B.M.S. Hansen, in "Planets Around Pulsars" (ed. J.A.Phillips et al)

ASP Conference Series Volume 36 pp 371 (ASP, 1993)

Locked mode disruptions and their avoidance on Tokoloshe tokamak

D.E. Roberts, J.D. Fletcher, G.W. van Vuuren, G. Nothnagel, D. Sherwell,

J.A.M. de Villiers, M.A. Hellberg, B.M.S. Hansen, M.J. Alport, in Proc Meeting of the

IAEA Technical Committee on the Avoidance and Control of Tokamak Disruptions,

Culham Laboratory, UK (Ed. T Todd), pp65-70 (IAEA, 1992)

Linear and nonlinear modelling of island control in tokamaks

B.M.S. Hansen, M.A. Hellberg, D. Sherwell, D.E. Roberts, W.S. McCloud, in

Proc Int Conf on Plasma Physics (Innsbruck, Austria), Vol II, 1397-1400 (1992)

Controlled wall boundary conditions in Tokoloshe tokamak

B.M.S. Hansen, M.A. Hellberg, D. Sherwell, D.E. Roberts, W.S. McCloud, in

Plasma Phys Div meeting of the APS (Tampa, Fla). Bull APS 36, 2501 (1991)

Recent Invited Talks:

Science Talks

- 2011
Empirical Constraints on Exoplanet Tides
Ohio State
- 2010
Empirical Constraints on Exoplanet Tides
UC Santa Cruz
- 2009
Measuring the Age of the Galaxy with White Dwarfs
UC Davis, Univ. Texas
- 2008
The Pulsar Planets and Terrestrial Planet Formation
Aspen Center for Physics
- 2007
Scratching the Surface of Hot Jupiters
Lowell Observatory, CalTech, University of Arizona
White Dwarfs in NGC 6397
Cal State Northridge
Variability in Extrasolar Planet Atmospheres
AAS Div. of Planet Sciences Meeting, Orlando, Fl.
- 2006
Hot Jupiters, Lands of Plenty
Lawrence Livermore National Lab
The White Dwarf Cooling Sequence of NGC 6397
UC Berkeley
Transport of Stars by an Intermediate Mass Black Hole
Harvard (Sackler Conference)
- 2005
White Dwarfs in Star Clusters
Los Alamos, UC Irvine, Princeton, Columbia

Public Talks

- Observing Extrasolar Planets*
Cal State Northridge Planetarium
- The Age of the Universe*

Los Angeles Futurist Society
Inter-Faith Conference on Creation

White Dwarf Cooling

Los Angeles Amateur Astronomy Society

Pulsar Planets

Santa Monica College