

Dr. Marcus S. Seigar (Marc)

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Employment:

Assistant Professor, University of Arkansas at Little Rock	2007 – present
Adjunct Professor, University of Arkansas Space Center	2007 – present
Assistant Project Scientist, University of California, Irvine	2006 – 2007
Gary McCue Fellow, University of California, Irvine	2006 – 2007
Postdoctoral Research Fellow, University of California, Irvine	2004 – 2006
UKIRT Support Astronomer, Joint Astronomy Centre	2001 – 2004
Adjunct Professor, University of Hawaii at Hilo	2003 – 2004
Postdoctoral Research Associate, Imperial College, University of London	2000 – 2001
Postdoctoral Research Associate, Ghent University, Belgium	1998 – 2000
Visiting Astronomer, Space Telescope Science Institute	1998 – 1999

Education:

PhD in Astrophysics, Liverpool John Moores University	1998
MSc in Radio Astronomy, University of Manchester	1994
BSc in Physics, upper second class, Imperial College	1993

Honors and Awards:

Gary McCue Fellowship	2006 – 2007
Mauna Kea Visitor Information Station Volunteer of the Year	2004
Mauna Kea Visitor Information Station Hoku Volunteer	2004
Mauna Kea Visitor Information Station Most Dedicated Volunteer	2003, 2004
Associate of the Royal College of Science	1993–present

Professional activities and memberships:

Member of the UALR CSAM Strategic Planning Metrics Committee	2008 – present
Member of the UALR Astronomy Core Curriculum Committee	2007 – present
Member of the LSST Galaxies Working Group	2006 – present
Member of the International Astronomical Union	2006 – present
Member of the American Astronomical Society	2003 – present
Member of the Mauna Kea Site Monitoring Working Group	2001 – 2004

Outreach Activities:

UC Irvine Observatory Public Talk	September 2006
UC Irvine Observatory Volunteer	2004 – 2007
Public Talk, Mauna Kea Visitor Information Station	October 2003
Public Talk, Mauna Kea Visitor Information Station	April 2003
Volunteer at the Mauna Kea Visitor Information Station	2002 – 2004

Recent Successful Proposals as PI and co-PI:

<u>Agency</u>	<u>Title</u>	<u>Time Period</u>	<u>PI</u>	<u>Award</u>
NASA	A census of supermassive black holes in the Universe	9/1/08-8/31/11	Seigar (UALR PI)	\$395,538
ASGC	The growth of supermassive black holes in the Universe	4/16/08-4/15/09	Seigar	\$5,000
NASA	Towards a census of supermassive black holes in the Universe	12/1/07-11/30/08	Seigar (UALR PI)	\$19,350
NASA/ <i>HST</i>	Central mass concentrations of disk galaxies: the nuclear spiral connection	7/1/06-6/30/09	Seigar	\$51,021
NASA/ <i>HST</i>	The coevolution of spiral structure and mass distribution in disk galaxies	8/1/05-7/31/07	Seigar	\$92,699

Observing Experience:

Experience in optical, near-infrared and sub-millimeter observing and data analysis:

- Hubble Space Telescope
- W. M. Keck Observatory
- European Southern Observatory Very Large Telescope
- United Kingdom Infrared Telescope
- James Clerk Maxwell Telescope
- Kitt Peak National Observatory 2.2-m Telescope
- European Southern Observatory Danish 1.5-m Telescope
- Las Campanas Observatory du Pont 100 inch Telescope

Teaching Experience:

Intro Astronomy Online, University of Arkansas at Little Rock	2008 – present
Intro Astronomy Lab Online, University of Arkansas at Little Rock	2008 – present
Intro Astronomy, University of Arkansas at Little Rock	2007 – present
Intro Astronomy, University of Hawaii at Hilo	2003 – 2004
Third year tutorials, teaching general physics at Imperial College	2000 – 2001
Online Astrophysics instructor, Liverpool John Moores University	1997 – 1998
Astrophysics Lab teaching assistant, Liverpool John Moores University	1996 – 1997
Mathematics teaching assistant, Liverpool John Moores University	1995 – 1996

Students Supervised:

Undergraduate Students:

William Ring (Senior)
 Paul Huwe (Senior)
 Amanda Leonard (Junior)
 Nicole Chorney (Sophomore)

Graduate students:

Angela Ferguson (Masters)

Dissertation and thesis committees:

Angela Ferguson (Masters, Chair), Michael Fahrenwald (Masters), Elizabeth Alvarez (PhD)

Invited Seminars and Talks:

Colloquium, University of Alabama, Department of Physics	November 2008
Seminar, Arkansas Center for Space and Planetary Sciences	July 2008
Colloquium, Arkansas Center for Space and Planetary Sciences	December 2007
Colloquium, University of Arkansas at Little Rock, Applied Science Department	September 2007
Colloquium, University of Arkansas at Little Rock, Physics Department	March 2007
Seminar, Berkeley Cosmology Group	January 2007
Colloquium, ESO, Santiago, Chile	December 2006
Seminar, UC Santa Cruz, Astronomy Department	October 2006
Seminar, IPAC, Caltech	September 2006
Invited Talk, Galaxies In The Cosmic Web, NMSU	May 2006
Seminar, UC San Diego, Center for Astrophysics & Space Sciences	February 2006
Colloquium, UCLA, Division of Astronomy and Astrophysics	February 2006
Seminar, Observatories of the Carnegie Institution of Washington	February 2006
Colloquium, Joint Astronomy Centre, Hilo	July 2004
Colloquium, Institute for Astronomy, Manoa	July 2004
Colloquium, Canada France Hawaii Telescope, Waimea	June 2004
Invited talk, Bars Congress, South Africa	June 2004
Colloquium, Gemini North Operations Center	January 2004
Colloquium, Subaru Telescope Headquarters	July 2003
Colloquium, Imperial College	October 2000
Colloquium, Liverpool John Moores University	December 1998
Invited talk, Extragalactic Astronomy in the Infrared, Les Arcs, France	March 1997

Press releases and press conferences:

Black Hole Research Lands NASA Grant, UALR press release	August 2008
UALR Astronomer Wows World's Science Media, UALR press release	June 2008
New Method Developed to Weigh Distant Black Holes, UALR press release	June 2008
New Method Developed to Weigh Distant Black Holes, AAS press release	June 2008
New Method Developed to Weigh Distant Black Holes, AAS press conference	June 2008

Media Coverage:

The following includes some media outlets who have interviewed me concerning my research:

"Earth & Sky", NPR radio show interview	October 2008
KARK4 NBC Arkansas News television interview	September 2008
BBC "Sky At Night" interview	June 2008
National Geographic Magazine article	June 2008
USA Today article	June 2008
Science Daily article	June 2008
Sky & Telescope article	June 2008
Astronomy Magazine article	June 2008
New Scientist Magazine article	April 2008
"Yesterday, Today & Tomorrow", NPR radio show	October 2007
Orange County Register newspaper article	October 2005
Hawaii Tribune Herald newspaper article	October 2003
Hawaii Tribune Herald newspaper article	April 2003

Marcus Seigar: Publications

Refereed Publications:

1. **Seigar, M. S.**, Bullock, J. S., & Barth, A. J., 2008, “A revised Λ CDM mass model for the Andromeda galaxy”, *MNRAS*, 389, 1911
2. **Seigar, M. S.** 2008, “A cosmologically motivated description of the dark matter halo profile for the low surface brightness galaxy, Malin 1”, *PASP*, 120, 945
3. **Seigar, M. S.**, Kennefick, D., Kennefick, J. D., Lacy, C. H. S. 2008, “Discovery of a relationship between spiral arm morphology and supermassive black hole mass in disk galaxies”, *ApJ*, 678, L93
4. Majewski, S. R., Beaton, R. L., Patterson, R. J.; Kalirai, J. S., Geha, M. C., Muñoz, R. R., **Seigar, M. S.**, Guhathakurta, P., Gilbert, K. M., Rich, R. M., Bullock, J. S., & Reitzel, D. B., 2007, “Discovery of Andromeda XIV: A Dwarf Spheroidal Dynamical Rogue in the Local Group?”, *ApJ*, 670, L9
5. Ivison, R. J., Greve, T. R., Dunlop, J. S., Peacock, J. A., Egami, E., Smail, I., van Kampen, E., Aretxaga, I., Babbedge, T., Biggs, A. D., Blain, A. W., Chapman, S. C., Clements, D. L., Coppin, K., Farrah, D., Halpern, M., Hughes, D. H., Ibar, E., Jarvis, M. J., Jenness, T., Jones, J. R., Mortier, A. M. J., Oliver, S., Perez-Gonzalez, P. G., Pope, A., Rawlings, S., Rieke, G. H., Rowan-Robinson, M., Savage, R. S., Scott, D., **Seigar, M. S.**, Serjeant, S., Simpson, C., Stevens, J. A., Vaccari, M., & Wagg, J., 2007, “The SCUBA HALf Degree Extragalactic Survey (SHADES) III. - Identification of radio and mid-infrared counterparts to submillimetre galaxies in the SHADES source catalogue”, *MNRAS*, 380, 199
6. Aretxaga, I., Hughes, D. H., Coppin, K., Mortier, A. M. J., Wagg, J., Dunlop, J. S., Chapin, E. L., Eales, S. A., Gaztañaga, E., Halpern, M., Ivison, R. J., van Kampen, E., Scott, D., Serjeant, S., Smail, I., Babbedge, T., Benson, A. J., Chapman, S., Clements, D. L., Dunne, L., Dye, S., Farrah, D., Jarvis, M., Mann, R. G., Pope, A., Priddey, R., Rawlings, S., **Seigar, M. S.**, Silva, L., Simpson, C., & Vaccari, M., 2007, “The SCUBA HALf Degree Extragalactic Survey (SHADES) IV. - Radio-mm-FIR photometric redshifts”, *MNRAS*, 379, 1571
7. **Seigar, M. S.**, Graham, A. W., & Jerjen, H., 2007, “Intracluster light and the extended stellar envelopes in cD galaxies: an analytical description”, *MNRAS*, 378, 1575
8. Gastaldello, F., Buote, D. A., Humphrey, P. J., Zappacosta, L., **Seigar, M. S.**, Barth, A. J., Brighenti, F., & Mathews, W. G., 2007, “Serendipitous *XMM-Newton* discovery of a cluster of galaxies at $z = 0.28$ ”, *ApJ*, 662, 923
9. Leggett, S. K., Currie, M. J., Varricatt, W. P., Hawarden, T. G., Adamson, A. J., Buckle, J., Carroll, T., Davies, J. K., Davis, C. J., Kerr, T. H., Kuhn, O. P., **Seigar, M. S.**, & Wold, T., 2006, “*JHK* Observations of faint standard stars in the Mauna Kea near-infrared photometric system”, *MNRAS*, 373, 781

10. Coppin, K., Chapin, E. L., Mortier, A. M. J., Scott, S. E., Dunlop, J. S., Halpern, M., Hughes, D. H., Pope, A., Scott, D., Serjeant, S., Wagg, J., Alexander, D., Almaini, O., Aretxaga, I., Babbedge, T., Best, P. N., Blain, A., Chapman, S., Clements, D. L., Dunne, L., Edge, A. C., Farrah, D., Gaztañaga, E., Gear, W. K., Granato, G. L., Greve, T. R., Fox, M., Ivison, R. J., Jarvis, M. J., Jenness, T., Lacey, C., Lepage, K., Mann, R. G., Marsden, G., Oliver, S., Peacock, J. A., Percival, W. J., Priddey, R. S., Rowan-Robinson, M., Savage, R., **Seigar, M. S.**, Sekiguchi, K., Silva, L., Simpson, C., Smail, I., Stevens, J. A., Takagi, T., Vaccari, M., van Kampen, E., & Willott, C., 2006, “The SCUBA HALf Degree Extragalactic Survey (SHADES) II. - Submillimetre maps, catalogue and number counts”, *MNRAS*, 372, 1621
11. **Seigar, M. S.**, Bullock, J. S., Barth, A. J., & Ho, L. C., 2006, “Constraining dark matter halo profiles and galaxy formation models using spiral arm morphology. I. Method outline”, *ApJ*, 645, 1012
12. Mortier, A. M. J., Serjeant, S., Dunlop, J. S., Scott, S. E., Ade, P., Alexander, D., Almaini, O., Aretxaga, I., Baugh, C., Benson, A. J., Best, P. N., Blain, A., Bock, J., Borys, C., Bressan, A., Carilli, C., Chapin, E. L., Chapman, S., Clements, D. L., Coppin, K., Crawford, M., Devlin, M., Dicker, S., Dunne, L., Eales, S. A., Edge, A. C., Farrah, D., Fox, M., Frenk, C., Gatzanñaga, E., Gear, W. K., Gonzalez-Solares, E., Granato, G. L., Greve, T. R., Gimes, J. A., Gunderson, J., Halpern, M., Hargrave, P., Hughes, D. H., Ivison, R. J., Jarvis, M. J., Jenness, T., Jimenez, T., van Kampen, E., King, A., Lacey, C., Lawrence, A., Lepage, K., Mann, R. G., Marsden, G., Mauskopf, P., Netterfield, B., Oliver, S., Olmi, L., Page, M. J., Peacock, J. A., Pearson, C. P., Percival, W. J., Pope, A., Priddey, R. S., Rawlings, S., Roche, N., Rowan-Robinson, M., Scott, D., Sekiguchi, K., **Seigar, M.**, Silva, L., Simpson, C., Smail, I., Stevens, J. A., Takagi, T., Tucker, G., Vlahakis, C., Waddington, I., Wagg, J., Watson, M., Willott, C., & Vacarri, M., 2005, “The SCUBA HALf Degree Extragalactic Survey (SHADES) I. - survey design and data analysis”, *MNRAS*, 363, 563
13. **Seigar, M. S.**, 2005, “The connection between shear and star formation in spiral galaxies”, *MNRAS*, 361, L20
14. **Seigar, M. S.**, Block, D. L., Puerari, I., Chorney, N. E., & James, P. A., 2005, “Dust penetrated arm classes: Insights from rising and falling rotation curves”, *MNRAS*, 359, 1065
15. Vreeswijk, P. M., Ellison, S. L., Ledoux, C., Wijers, R. A. M. J., Fynbo, J. P. U., Moller, P., Henden, A., Hjorth, J., Masi, G., Rol, E., Jensen, B. L., Tanvir, N., Levan, A., Castro Cerón, J. M., Gorosabel, J., Castro-Tirado, A. J., Fruchter, A. S., Kouveliotou, C., Burud, I., Rhoads, J., Masetti, N., Palazzi, E., Pian, E., Pedersen, H., Kaper, L., Gilmore, A., Kilmartin, P., Buckle, J. V., **Seigar, M. S.**, Hartmann, D. H., Lindsay, K., & van den Heuvel, E. P. J., 2004, “The host of GRB 030323 at $z=3.371$: a very high column density DLA with a low metallicity”, *A&A*, 419 927
16. James, P. A., Shane, N. S., Beckman, J. E., Cardwell, A., Collins, C. A., de Jong, R. S., Etherton, J., Fathi, K., Knapen, J. H., Peletier, R. F., Percival,

- S. M., Pollacco, D. L., **Seigar, M. S.**, Stedman, S., & Steele, I. A., 2004, “The H α Galaxy Survey I.- The galaxy sample, H α narrow-band observations and star formation parameters for 334 galaxies”, A&A, 414, 23
17. Leggett, S. K., Hawarden, T. G., Currie, M. J., Adamson, A. J., Carroll, T. C., Kerr, T. H., Kuhn, O. P., **Seigar, M. S.**, Varricatt, W. P., & Wold T., 2003, “L' and M' standard stars for the Mauna Kea observatories near-infrared system”, MNRAS, 345, 144
 18. **Seigar, M. S.**, Lynam, P. D., & Chorney, N. E., 2003, “A triple nucleus in the brightest cluster galaxy in Abell 193”, MNRAS, 344, 110
 19. **Seigar, M. S.**, Chorney, N. E., & James, P. A., 2003, “Near-infrared constraints on the driving mechanisms for spiral structure”, MNRAS, 342, 1
 20. **Seigar, M. S.**, & James, P. A., 2002, “A test of arm-induced star formation in spiral galaxies from near-IR and H α imaging”, MNRAS, 337, 1113
 21. **Seigar, M. S.**, 2002, “Is Messier 74 a barred spiral galaxy? - Near-infrared imaging of M 74”, A&A, 393, 499
 22. Carollo, C. M., Stiavelli, M., **Seigar, M.**, de Zeeuw, P. T., & Dejonghe, H., 2002, “Spiral galaxies with HST/NICMOS I. - Nuclear morphologies, color maps and distinct nuclei”, AJ, 123, 159
 23. **Seigar, M.**, Carollo, C. M., Stiavelli, M., de Zeeuw, P. T., & Dejonghe, H., 2002, “Spiral galaxies with HST/NICMOS II. - Isophotal fits and nuclear cusp slopes”, AJ, 123, 184
 24. Carollo, C. M., Stiavelli, M., de Zeeuw, P. T., **Seigar, M.**, & Dejonghe, H., 2001, “Hubble Space Telescope Optical-Near-Infrared Colors of Nearby $R^{1/4}$ and Exponential Bulges”, ApJ, 546, 216
 25. James, P. A., & **Seigar, M. S.**, 1999, “The nature of near-infrared emission from spiral galaxies”, A&A, 350, 791
 26. **Seigar, M. S.**, & James, P. A., 1998, “The structure of spiral galaxies I. - Near-infrared properties of bulges, disks and bars”, MNRAS, 299, 672
 27. **Seigar, M. S.**, & James, P. A., 1998, “The structure of spiral galaxies II. - Near-infrared properties of spiral arms”, MNRAS, 299, 685

Conference Proceedings:

1. **Seigar, M. S.**, Ring, W., Kenefick, D., Kenefick, J., & Lacy, C. H. S., 2009, “The Arkansas Galaxy Evolution Survey (AGES): The Evolution of the Supermassive Black Hole Mass Function in Spiral Galaxies”, AAS, 213, 418.09
2. Ferguson, H. C., Armus, L., Borne, K., Dickinson, M., Gawiser, E., Gilmore, K., Ivezić, Z., Margoniner, V., Norman, D., Obrić, M., Obrić, M., Rasmussen, A., Roskar, R., Schmidt, S., **Seigar, M. S.**, Stanford, S., Strauss, M., Wechsler, R., Newman, J., Tyson, J. A., & Zentner, A., 2009, “The LSST Galaxies Science Collaboration: Nearby Groups and Clusters”, AAS, 213, 460.07

3. **Seigar, M. S.**, Kennefick, D., Kennefick, J., & Lacy, C. H. S., 2008, “Discovery of a relationship between spiral arm morphology and supermassive black hole mass in disk galaxies”, AAS, 212, 52.03
4. Lacy, C. H. S., Kennefick, D., Kennefick, J., & **Seigar, M. S.**, 2008, “Binary supermassive black holes”, AAS, 212, 15.05
5. Kennefick, D., Kennefick, J., Lacy, C. H. S., & **Seigar, M. S.**, 2008, “The Arkansas Galaxy Evolution Survey (AGES): Supermassive black holes in the Universe”, AAS, 212, 15.06
6. **Seigar, M. S.**, 2007, “The mass of the galaxy Malin 1 from the spiral pitch angle versus shear relation”, AAS, 211, 013.09
7. Ferguson, H. C., Borne, K., Dickinson, M., Gawiser, E., Gilmore, K., Fabio, G., Jimenez, R., Margoniner, V., Norman, D., Obric, M., Rasmussen, A., Roskar, R., **Seigar, M. S.**, Stanford, A., Strauss, M., & Wechsler, R., 2007, “The LSST galaxies science collaboration”, AAS, 211, 137.08
8. **Seigar, M. S.**, Barth, A. J., & Bullock, J. S., 2007, “A New Mass Model for M31”, in *Galaxy Evolution Across The Hubble Time*, ed. F. Combes & J. Palous, IAU Symp. 235, Cambridge Univ. Press: Cambridge, p. 135
9. **Seigar, M. S.**, Ho, L. C., Barth, A. J., Peng, C. Y., 2006, “The Carnegie-Irvine Nearby Galaxies Survey (CINGS): Surface Brightness Profiles, Color Profiles and 1-D Decompositions”, AAS, 209, 211.02
10. **Seigar, M. S.**, Barth, A. J., Bullock, J. S., & Ho, L. C., 2005, “Mass distribution of spiral galaxies from characteristics of spiral structure: Constraints on galaxy formation models”, in *The Fabulous Destiny of Galaxies: Bridging Past and Present*, ed. V. Le Brun et al., Frontier Group: Paris, p. 567
11. **Seigar, M. S.**, & Graham, A. W., 2004, “An analytical description of the extended halos of cD galaxies”, AAS, 205, 92.14
12. **Seigar, M. S.**, Block, D. L., & Puerari, I., 2004, “Dust penetrated arm classes - Insights from rising and falling rotation curves”, in *Penetrating bars through masks of cosmic dust: The Hubble tuning fork strikes a new note*, ed. D. L. Block et al., Springer: Dordrecht, p. 155
13. **Seigar, M. S.**, Lynam, P. D., Graham, A. W., & Bodnarik, J. G., 2003, “The nuclei of nearby giant elliptical galaxies”, AAS, 203, 116.22
14. **Seigar, M. S.**, James, P. A., Puerari, I., & Block, D. L., 2003, “The link between rotation curve type and spiral arm structure in disk galaxies”, in *Galaxy evolution: Theory and observations*, ed. V. Avila-Reese et al., RevMexAA SC, 17, 184
15. **Seigar, M. S.**, Adamson, A. J., Rees, N. P., Hawarden, T.G., Currie, M. J., & Chuter, T. C., 2002, “Seeing statistics and the upgraded 3.8m UK Infrared Telescope (UKIRT)”, proc. SPIE 4844, 366
16. **Seigar, M. S.**, & James, P. A., 2001, “A test of arm-induced star formation in spiral galaxies from near-IR and H α imaging”, in *Disk galaxies and galaxy disks*, ed. J. G. Funes & E. M. Corsini, ASP Conf. Series vol. 230, p. 331

17. **Seigar, M. S.**, Carollo, C. M., Stiavelli, M., Dejonghe, H., & de Zeeuw, P. T., 2000, "Spiral galaxies with HST - Near-infrared properties of bulges", in *Galaxy dynamics: from the early universe to the present*, ed. F. Combes et al., ASP Conf Ser. Vol. 197, p. 269
18. **Seigar, M. S.**, & James, P. A., 1997, "The structure of spiral galaxies", in *Extragalactic astronomy in the infrared*, ed. G. Mamon et al., Editions Frontières: Paris, p. 33

Popular Articles:

1. **Seigar, M.**, "The Big Bang and the seeds for galaxy formation", Hawaii Tribune Herald, October 2003
2. **Seigar, M.**, "UKIRT reveals dark secrets at the hearts of galaxies", Hawaii Tribune Herald, April 2003

Bulletins and Newsletters:

1. **Seigar, M.**, 2003, "Primary Mirror Aluminizing: Summer 2003", UKIRT newsletter, 13, 6
2. **Seigar, M.**, 2002, "Galaxy Cannibalism as seen by UKIRT and HST", UKIRT newsletter, 11, 5
3. **Seigar, M.**, 2002, "Seeing statistics at UKIRT in the year 2001", UKIRT newsletter, 10, 7
4. **Seigar, M.**, James, P., Block, D., & Puerari, I., 2002, "Spiral galaxy morphology and the link with rotation curve type", UKIRT newsletter, 10, 3