Robert P. Olling: **Curriculim Vita**

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CURRENT POSITION

Dept. of Astronomy, University of Maryland, Research Associate 5/06–present

EDUCATION

Columbia University, New York, Ph.D. in Astronomy 10/95
Dissertation Title: "The Shape of Dark Matter Halos"
Dissertation Adviser: Professor Jacqueline van Gorkom

Columbia University, New York, M.Phil. in Astronomy 10/93

Groningen University, the Netherlands, M.Sc. in Astronomy 7/86

HONORS AND AWARDS

USRA's "Navy Programs Programmatic Excellence Award (2002)"

RESEARCH EXPERIENCE

University of Maryland, Research Associate 05/06–present
- FIVE White Papers for the ASTRO 2010 Decadal Survey, **ONE first author:** "An Era of Precision Astrophysics: Connecting Stars, Galaxies and the Universe"
- Contributor to the "SIM Book," (Ch. 6 & 10.1)
- Member of the SIM/GAIA Synergy Group
- Extra-galactic Astrometry: Member of the SIMDOG SIM Key Project (PI, Shaya)
- How to detect Solar-System Analogs amongst other stars (White Paper for ExtraSolarPlanet Task Force & **SIM Science Studies Research Grant**)
- The importance of H_0 for characterizing dark energy
- Astrometric distance determination of external galaxies to 1% (White Paper for ExtraSolarPlanet Teaks Force & **SIM Science Studies Research Grant**)
- H I -based self-consistent mass models of the Milky Way

University of Maryland, Visiting Research Associate and **USRA** 9/05–04/06
- Studies of binarity among Hipparcos stars
- Dark Matter Halo Shapes from Flaring Gas Layers

USRA, Research Scientist 9/05–1/06
- Analyze 2MASS Red-Clump stars to determine R_0 (**NASA/ADP grant;** 09/05 – now)
- Preliminary design for a MIDEX-class space mission to identify 10,000 transiting planets

USRA/USNO, Research Scientist 9/00–9/05
- Critical participant in dispersed Fourier Transform Spectroscope project (PI Hajian)
- Many aspects of proposed US astrometric missions
  - Draft of substantial part of the science case for the AMEX & OBSS missions
  - Minimize overlap with ESA's GAIA mission
  - Starformation and assembly history of the Milky Way: "near-field cosmology."
  - Content of OBSS catalogs as a function of magnitude and astrometric accuracy
  - Temporal characteristics of the FAME, AMEX and OBSS missions
  - Discovered OBSS' utility in discovering transits of extra-solar giant planets
  - OBSS' capability is discovering a significant number of potentially hazardous asteroids
- Participated in USNO's TPF activities

- Astrometric signatures of binarity in the Hipparcos catalog.

Rutgers University, Postdoctoral Researcher (8/98-1/00) and Research Associate 1/00–7/00

- Large-scale software development: reduce and analyze HST-STIS spectroscopy
- Three Space Interferometry Mission grant proposals:
- Unraveling the inter-relations between luminous, dusty and dark matter in M31
- The time-evolution of the disk-halo conspiracy: rotation curves of high-redshift galaxies
- H I widths and kpc-scale structure in galactic dark matter distributions
- H I gas layer widths and the shape of dark matter halos
- Disk mass of NGC 2403 from stellar velocity dispersions and H I width measurements
- The radial density profiles of luminous and dark matter in spirals

Southampton University, Postdoctoral Research Fellow 10/95–8/98

- Determined the Galactic constants from Oort constant constraints [$R_0 \sim 7.1$ kpc]
- Determined the shape (almost round) of the Milky Way's dark matter halo
- Use self-consistent mass models to predict μ-lensing rates towards the Galactic bulge
- Determined the Oort constants from the Tycho/ACT catalogue

Columbia University, Dissertation Research 1/90–9/95

- Developed new methods to determine the thickness of the gas layer from the full H I spectral line cube.
- Developed self-consistent mass models to determine the shape of dark matter halos.
- Found that NGC 4244's dark halo is extremely flattened

NRAO, Socorro, Visiting Researcher Summers of 1991–1994

- Acquired, reduced and analyzed VLA H I spectral line data

Netherlands Foundation for Research in Astronomy, Summer Research Fellowship 1990

- Data reduction of H I spectral line cubes

Space Research Organization of the Netherlands, Scientific Consultant 9/86–12/89

- Designed and implemented software to extract spectra of faint and/or extended sources from the IRAS-LRS database
- Sorted LRS all-sky spectrometer data from time-based to POSS-based system

Groningen University, M.Sc. thesis 1984–1986

- Wrote software to analyze the IRAS point source catalogue
- Obtained long-slit and Echelle spectra of PN (candidates) at La Silla observatory (ESO)
- Determined IRAS-FIR fluxes for the "Polar Ring Catalogue"

OBSERVING EXPERIENCE

Optical Fourier Transform Spectroscopy: USNO's 11 and 24" telescopes

Radio, VLA, H I spectral line synthesis imaging (PI, hundreds of hours on-site)

Mid Infra-red, IRAS low resolution spectrograph

Near Infra-red imaging, Calar Alto, 3.5m (CoI, 2 nights)

Optical spectroscopy ESO, 1m (long slit, 4 nights), ESO CAT (Echelle, 3 nights), WHT (long slit; PI 6 nights)

Optical imaging INT,2m: BVR wide field imaging (PI, 3 nights)

FELLOWSHIPS

Columbia University, Research Fellowship 6/91- 9/95
Columbia University, Teaching Fellowship 1/90- 5/91
Netherlands Foundation for Research in Astronomy Summer Research Fellowship 1990

GRANT PROPOSALS (PI)

Selected:

UMd, 2008 ($ 75,000)."1% Luminosity-Independent Distances to Nearby Galaxies with the Rotational Parallax Technique," **Olling (PI)** & Shaya; NASA/SIM Science Studies

UMd, 2008 ($ 75,000). "Searching for Solar System Giant Analogs with SIM PlanetQuest," **Olling (PI)** & Shaya; NASA/SIM Science Studies

USNO/USRA/UMd ($ 156,000) 2004–2008, "Galactic Structure & Dynamics from 2MASS, Tycho-2 & UCAC-2" **Olling (PI)**, NASA/ADP

Pending:

UMd, 2009, "Wide Binaries and Escaped Binary Components in the Solar Neighborhood" **Olling (PI)** & Shaya; NSF/AAG

UMd, 2009, "The GALEX Extra-Galactic Star Catalog," **Olling (PI)** & Shaya; NASA/GALEX-GI/Cy6

GRANT PROPOSALS (CoI)

Selected:

USRA/USNO, 2003, The Origins Billion Star Survey (OBSS) mission. Johnston (PI), ..., **Olling (Co-I/science-team member)**. NASA/JPL's Origins Roadmap Program

ACADEMIC SERVICE

MNRAS/ApJL/AJ/A&A/PATT: Refereed 18 papers & 5 observing proposals '98-present
NASA/ADP: Review grant proposal August 2009
AAAS: Review contributions to the AAAS Science Journalism Awards September 2005
AAS: Panel member that recommended speakers for the 2006 AAS Winter Meeting Apr. 2006
NSF: Was asked to serve on a panel that reviews and ranks grant proposals to NSF Feb. 2004
AAAS: Review contributions to the AAAS Science Journalism Awards August 2003
USNO: Review papers for the internal Editorial Board 2002-2004
USNO: Organizing loosely-formatted (pizza-lunch) research talks 2002-2005
NSF: Served on a panel that reviews and ranks grant proposals to NSF March 2002
Rutgers University: Organized local research seminars Fall 1999
Southampton University: Organized colloquium series Spring 1998
Swiss National Science Foundation: Reviewed grant proposal 1996
Columbia University: Grad. Student Advisory Council. Departmental student rep. '91-'92
University of Groningen: Student representative to the Faculty Board 1984-85

SUMMARY OF PUBLICATIONS, PRESENTATIONS & PUBLICITY

- Seventen refereed papers, of which **four single authored & 4 first author**
- Three papers in preparation
- Four White Papers for the 2010 Decadal Survey (1 first author)
- Three White Papers for the ExtraSolar Planet Task Force (2007; 2 single author)
- Five invited oral conference contributions
- One invited conference panelist
- **81** other papers, including: **4** White Papers for the 2010 Decadal Survey; **3** White Papers for the ExtraSolar Planet Task Force (2007); **11** OBSS Technical Memorandums; **14** FAME/AMEX Technical Memorandums; **49** conference presentations, including **10** conference **talks**
- **Thirty-four invited Colloquia**
- Six public lectures
- Two press releases resulting in several newspaper articles
- Two radio interviews (BBC)

PRESENTATIONS

INVITED CONFERENCE TALKS

- "Searching for Solar Syatem Giant Analogs with SIM," JPL/NExScI 9/2008
- "1% Luminosity-Independent Distances to Nearby Galaxies with the Rotataional Parallax Technique," JPL/NExScI 9/2008
- "Rotational Parallaxes," Michelson Science Center 5/2007
- "The Shape of Dark Matter Halos," Aspen 1/1999
- "The Flattened Dark Matter Halos of NGC4244 and the Milky Way," Heidelberg 9/1996

CONFERENCE PRESENTATIONS

9/09 "The Milky Way and the Local Group - Now and in the Gaia Era," **Talk**
- "Precision Astrophysics: Connecting Stars, Galaxies & the Universe" (Heidelberg)

6/09 214^{th} AAS meeting, USA: **1 Poster Paper**
- "SIM Science Studies: Dynamics of Nearby Galaxies & Long-Period Planetary Systems"

1/09 213^{th} AAS meeting, USA: **2 Poster Papers**
- "Searching for Solar System Analogs with SIM"
- "Rotational Parallax: A SIM Science Study

5/08 STScI Symposium "A Decade of Dark Energy," **1 Poster Paper**
- "Astrometry, Precision Astrophysics, H0 & (some) Cosmology: A Connection between Stars, Galaxies and the Universe"

1/08 211^{th} AAS meeting, USA: **1 Poster Paper**
- "The distance to the Galactic Center from Red Clump Giants"

1/06 207^{th} AAS meeting, USA: **2 Poster Papers**
- "The Mily Way: A Connection between Stars, Galaxies and the Universe"
- "The Dispersed Fourier Transform Spectrometer - Toward Earth-Mass Planet Detection"

1/05 206^{th} AAS meeting, USA: **1 Poster Paper**
- "VLA Imaging of the SiO Maser Emisison Toward AGB Stars:

SIM PlanetQuest Preparatory Science"

10/04 Flagstaff, USA, "Astrometry in the Age of Large Telescopes;" **1 Poster Paper**
- "Astrometric Binaries in the Age of the Next Generation of Large (Space) Telescopes"

5/04 Uni. of California, Berkeley, USA, "Wide Field Imaging From Space:" **1 Poster Paper**

1/04 203^{rd} AAS meeting, USA: **1 Poster Paper**
- "Binarity and the Fine-Print in the Hipparcos Catalogs:
Revised Distance Scale?, More Binaries in the Solar Neighborhood"

10/03 Uni. of Maryland, USA, "The search for Other Worlds:" **1 Poster Paper**
- "The AMEX Astrometry Mission: An Effective ExtraSolar Planet Finder"

6/03 Boston University Surveys of the Milky Way: **1 Poster Paper**
- "Oort's Constants Measured from Proper motions:
Solid Evidence for an Asymmetric Galactic Potential"

1/03 201^{th} AAS meeting, USA: **3 Poster Papers**
- "Photometric Detection of Hot–Jupiters with a FAME-like Space Astrometry Mission"
- "Precision Astrophysics with a FAME-like Space Astrometry Mission"
- "Stellar Mass-to-Light Ratios and Rotation Curves of Spiral Galaxies"

1/02 199^{th} AAS meeting, USA: **2 Poster Papers**
- "FAME Astrometry of Faint Objects and the Kinematics of the Galaxy"
- "Full-sky Astrometric Mapping Explorer (FAME) Rescope Activities"

7/01 "Challenges for Photometry and Spectrometry with GAIA:" **Talk**
- "FAME: Precision Astrometry, Photometry & Astrophysics"

2/01 WAS Winter meeting, USA **1 Poster Paper**

1/01 197^{th} AAS meeting, USA **1 Poster Paper**
- "One Percent Distances to Local Group Galaxies via Rotational Parallaxes"

6/00 196^{th} AAS meeting, USA **2 Poster Papers**
- "Dynamical modeling of M32 with stellar kinematics from STIS"
- "Kinematical Results for NGC2841, NGC4552, and M87"

1/00 195^{th} AAS meeting, USA **3 Poster Papers**
- "Kinematical Black Hole Results for NGC2841, NGC4552, and M87"
- "STIS Observations of the Center of M32"
- "Oort's Constants Measured from the Tycho/ACT Catalogue"

9/99 "Black Holes in Binaries and Galactic Nuclei," ESO: **Talk**
- "Black Hole Results from STIS"

6/99 194^{th} AAS meeting, USA **2 Poster Papers**
- "New Black Hole Results from STIS"
- "The Origin of the Black Hole in M87"

7/99 "Galaxy Dynamics," Paris, France **1 Poster Paper**
- "New Black Hole Results from STIS"

10/98 "Galactic Dynamics," Rutgers, USA **1 Poster Paper**
- "The Shape of the Milky Way's Dark Halo"

1/98 191^{th} AAS Meeting, USA: **Talk**
- "The Case for a Leaner Milky Way"

7/97 "Galactic Halos," Santa Cruz, USA **2 Poster Papers**

- "The Shape of the Milky Way's Dark Halo"
- "Refining the Oort Constants: The Case for a Smaller Milky Way"

4/97 NAM, UK **1 Poster Paper**
- "The shape of the Milky Way's Dark Matter Halo"

7/96 "Dark & Visible Matter in Galaxies & Cosmological Implications," Sexto/Italy **Talk**

4/96 NAM, UK **1 Poster Paper**
- "The Highly Flattened Dark Matter Halo of NGC 4244"

1/96 187^{th} AAS Meeting, USA **Thesis Talk**
- "The Highly Flattened Dark Halo of NGC 4244"

1/95 185^{th} AAS Meeting, USA **1 Poster Paper**
- "Flaring gas layers : A tool to determine the shape of dark matter halos

10/94 "Maryland Astrophysics Conference on Dark Matter," USA **1 Poster Paper**
- "The Shape of the Dark Matter Halo of NGC 4244"

6/93 182^{th} AAS meeting, USA **1 Poster Paper**
- "The shape of the dark matter halo of NGC 4244"

6/92 "Teton Summer School on Astrophysics," USA **1 Poster Paper**
- "The Effects of Flaring in HI on the Observed Velocity Field of Spirals"

89 Netherlands Astronomy Meeting **1 Poster Paper**

INVITED COLLOQUIA

5/09 GWU, Fairfax, VA	"Connecting Stars (their planets), Galaxies and the Universe in the Decade of Astrometry"
3/09 PALS, College Park, MA	"Astrometric & Photometric Detection & Characterization of (massive) Extrasolar Giant Planets"
1/09 GSFC, Greenbelt, MA	"Astrometric & Photometric Detection & Characterization of (massive) Extrasolar Giant Planets"
10/07 NRAO Charlottesville/UVa, VA	"Astrometry, Precision Astrophysics, H_0 & (some) Cosmology: Connecting Stars, Galaxies and the Universe"
10/05 Uni. of Maryland, College Park, MD	"Astrometry of the Milky Way & Co"
3/01 Uni. of Maryland, College Park, MD	"Size, Mass & Shape of the Milky Way"
9/01 Uni. of Massachusetts, Amherst, MA	"Size, Mass & Shape of the Milky Way"
3/01 NRAO, Greenbank, WV	"The Case for a Leaner Milky Way"
5/00 Am. Museum of Nat. History, NY	"The Case for a Leaner Milky Way"
4/00 USNO, Washington	"Size, Mass & Shape of the Milky Way"
1/00 Berkeley	"Size, Mass & Shape of the Milky Way"
1/00 LLNL-IGPP	"Size, Mass & Shape of the Milky Way"
10/99 Rutgers University	"The Shape of Dark Matter Halos"
9/99 NRAO, Charlottesville	"Size, Mass & Shape of the Milky Way"
7/99 MPA, Heidelberg, Germany	"Size, Mass & Shape of the Milky Way"
2/99 Yale University	"Size, Mass & Shape of the Milky Way"
4/98 Princeton University	4/98 Columbia University
4/98 STScI	2/98 Imperial College, UK
1/98 OAN, Alcala, Spain	10/97 Rutgers University

10/97	Uni. of Brighton, UK		"The Shape of Dark Matter Halos"		
10/97	Uni. of Groningen, NL		"The Shape of Dark Matter Halos" (SDMHs)		
5/97	IAP, Paris, France	*"SDMHs"*	1/97	IAC, Tenerife, Spain	*"SDMHs"*
10/96	Uni. of Hertfordshire,UK	*"SDMHs"*	6/96	Uni. of Durham, UK	*"SDMHs"*
5/96	Uni. of Groningen, NL	*"SDMHs"*	5/96	Uni. of Liverpool, UK	*"SDMHs"*
2/96	NMSU, Las Cruces	*"SDMHs"*	10/95	IAA, Granada, Spain	*"SDMHs"*
9/95	Columbia University	*"SDMHs"*	1/95	NRAO, Socorro	*"SDMHs"*

TEACHING EXPERIENCE

UMd: I the spring, of 2010, I will be teachng ASTRO300, "Stars and Stellar Systems." In the fall of 2007, spring of 2008 and fall 2008, I taught ASTR220 ("Collisions in Space") which is part of UMd's CORE Physical Science (PS) program. This course is not open to astronomy majors but is appropriate for non-science majors. Roughly two-thirds of this class focused on: 1) collisions in the solar system, and 2) analysis of our planet's fossil record in search of hard evidence for large impacts and the associated mass extinctions. The class also discusses collisions and mass-transfer between stars, collisions between galaxies and the resultant feeding of super-massive black holes. We did several in-classs activities such as a crater-making experiment, watching asteroid/comet collisions with the Earth (Hollywood style), analysis of a popular-science television program on the subject of mass extinctions and a analyis in small groups of our "extinction book" (Night Comes to Cretaceous by J.L. Powell). Thus, this is a rather multidiciplinary course, and I enjoyed teaching it very much.

While I benefitted immensely from notes provided by previous instructors, I made substantial additions to the lecturs and even more need to be made to improve the class. For many classes I have incorporated "YouTube" videos on "The great Dying," real and fake meteorite "impacts" and "base jumping." I added new materials on several aspects on the extinction of species due to global forrest fires, acid rain, and materials based on Martin White's blog "Bad Science Journalism and the Myth of the Oppressed Underdog."

In future classes, I want to cut back more on the pretty astronomical pictures (not easy for an astronomer) and spend more time on aspects related to the philosophy of science, how science is done in practice, and geology itself: all these aspects are quite nicely laid out in "Night Comes to Cretaceous".

USNO/USRA: In the summers of 2001–2003 I helped a high-school student take the first steps on his journey to become a scientist. During these periods, we worked for several weeks on a research project in Galactic Astronomy employing archival astrometric and radial velocity data. At first, he used the web for literature searches and data retrieval, and learned/used IDL for quick analyses of the data. In the summer of 2002, the same student (now graduated from Cambridge University [UK]) compared model predictions with actual data (Monte Carlo techniques). In the summer of 2003 he wrote a Bayesian fitting program to interpret the data. The student is currently a gradute student at the University of Waterloo (CA). In the summer of 2005, I mentored a (freshman) student for the University of Michigan who participated in the USNO summer student program. He extracted Hubble Space Telescope images of quasars from the HST archives and evaluated whether these quasars were likely to be point sources and suitable for future SIM observations.

Rutgers University: While at Rutgers University, I participated for two years in a science education program which aims to bring hands-on astronomy to the classroom. This "Astro Nova" progam *begin quote,* "... is part of the national Project ASTRO which creates long-term partnerships between astronomers and teachers or youth group and community leaders. The philosophy behind Project ASTRO is that students learn best when using hands-on inquiry-based activities ... . Project ASTRO NOVA has trained over 200 teachers and over 120 astronomers and reached over 35,000 New Jersey students." *end quote.* See http://www.raritanval.edu/planetarium/astro/astronova.htm for details.

As an astronomer, I was a resource for the teacher (in- and outside the classroom) and provided students with the opportunity to have long-term interactions with a "real scientist." The teacher taught a special-ed class, and I designed my presentations and experiments to fit the students' needs.

Southampton University: In the spring of 1997 and 1998, I designed and taught part of "Physics of the Solar System": an astronomy class for 2nd year science majors (based on "The new Solar Sytem" by Beatty & Chaikin). We studied the Solar System through a range of activities such as student discussions, in-class Internet exploration and lectures.

Columbia University: Instructor for the lab section of Astronomy 101: introducing students to practical aspects of astronomy.

Groningen University: I completed a teacher-training program, and received a Teaching Certificate for high-school Physics. This course focused on methods of teaching physics, with emphasis on student lab work and classroom participation. As part of this course, I taught several groups of 13-18 year olds, designed and graded their exams.

EDUCATION AND PUBLIC OUTREACH ACTIVITIES

PUBLIC LECTURES

The National Capital Astronomers Open House: College Park, USA	10/09
Open House: Metzgerot Observatory, UMd, College Park, USA	1/09
Amateur Astronomers Association, Princeton, USA	12/98
American Museum of Natural History, New York, USA	10/98
Hampshire Amateur Astronomical Society, Southampton, UK	6/98
Amateur Astronomical Society of the Isle of Wight, UK	6/98

PUBLICITY & INTERVIEWS

"BBC World Service," Radio Interview for "Discovery" (UK)	4/14/97
"BBC Solent," Radio Interview (UK)	4/97
"El Pais" reported on: "3 Dimensional Structure of the Dark Matter" (Spain)	4/10/97
"Science Now" reported on: "The Milky Way's Dark Shell" (USA)	4/9/97
"The Independent" reported on: "The Dark Side of the Milky Way" (UK)	4/9/97
"The Independent" Leading Article inspired by "...the enormously abstruse calculations disclosed yesterday in Southamptom [by Olling & Merrifield] ..." (UK)	4/9/97
"Royal Astronomical Society," Press Release (UK)	4/7/97

PRESS RELEASES

USNO Press Release, 2005 AAS Winter Meeting: "Star Companions Rule" **Olling R.P.**

RAS Press Release, 1997: "Viewing the Milky Way through Dark Matter Glasses."
http://ad.usno.navy.mil/∼olling/Publicity/nam97_MW.html
Olling R.P., Merrifield M.R.

SCIENCE EDUCATION PROGRAMS

Project "ASTRO NOVA" 9/98-04/00

Woodrow Wilson Middle School, Edison, NJ. Bringing hands-on astronomy to the classroom (http://www.raritanval.edu/planetarium/astro/astronova.htm).

BIBLIOGRAPHY & PRESENTATIONS

Some of my 84 publications can be obtained electronically at:
http://www.astro.umd.edu/∼olling/RecentPapers.html

According to ADS, my 17 refereed papers have 914 citations (11/20/2009), a refereed-citation count of 53.8 per refereed paper, and a citation count of approximately 23.4 per author-normalized refereed paper. I list the number of author-normalized citations (ANC) and total number of citations (TNC) per publication, as well as those normalized by the number of years since publication.

REFEREED PUBLICATIONS

- Unwin, S. C., ..., **Olling, R.P.**, and 34 co-authors,
  "Taking Measure of the Universe: Precision Astrometry with SIM PlanetQuest"
  2008, PASP, 120, 38 TNC: 38; ANC: 1.06; TNC/yr: 38; ANC/yr: 1.06
- **Olling, R.P.**,
  "Accurate Extra-Galactic Distances and Dark Energy: Anchoring the Distance Scale with Rotational Parallaxes,"
  2007, MNRAS, 378, 1385 TNC: 9; ANC: 9.0; TNC/yr: 4.50; ANC/yr: 4.50
- Hajian, A.R., Behr, B., Cenko, A., **Olling, R.P.**, and 14 co-authors,
  "Initial Results from the USNO Dispersed Fourier Transform Spectrograph,"
  2007, ApJ, 661, 616 TNC: 1; ANC: 0.06; TNC/yr: 0.5; ANC/yr: 0.02
- Johnston, K. J., Dorland, B., Gaume, R., Hennessy, G., **Olling, R.**, and 29 co-authors,
  "The Origins Billions Star Survey: Galactic Explorer,"
  2006, PASP, 118, 1428 TNC: 5; ANC: 0.147; TNC/yr: 1.66; ANC/yr: 0.02
- Makarov, V., **Olling, R.P.**, Teuben, P.J., "Stellar Associations at Large: I. The Epicycle Approximation and the Convergent Point Method,"
  2004, MNRAS, 352, 1199 TNC: 11; ANC: 3.67; TNC/yr: 2.20; ANC/yr: 0.73
- **Olling, R.P.**, Dehnen, W.,
  "The Oort Constants Measured from Proper Motions,"
  2003, ApJ, 599, 275 TNC: 25; ANC: 12.5; TNC/yr: 4.16; ANC/yr: 2.08
- Salim, S., Gould, A., **Olling, R.P.**,
  "Astrometry Survey Missions Beyond the Magnitude Limit,"
  2002, ApJ, 573, 631 TNC: 6; ANC: 3; TNC:/yr 0.87; ANC/yr: 0.29
- **Olling, R.P.**, Merrifield, M.R.,
  "Luminous and Dark Matter in the Milky Way,"
  2001, MNRAS, 326, 1 TNC: 62; ANC: 31.0; TNC/yr: 7.75; ANC/yr: 3.88
- Joseph, C., Merritt, D., **Olling, R.P.**, Valluri, M., Bender, R., and the STIS IDT,
  "The Nuclear Dynamics of M 32 I. Data and Stellar Kinematics,"
  2001, ApJ, 550, 668 TNC: 39; ANC: 2.94; TNC/yr: 4.88; ANC/yr: 0.29
- **Olling, R.P.**, Merrifield, M.R.,
  "Two Measures of the Shape of the Dark Halo of the Milky Way,"
  2000, MNRAS, 311, 361 TNC: 88; ANC: 44; TNC/yr: 9.78; ANC/yr: 4.89
- **Olling, R.P.**, Merrifield, M.R.,
  "Refining the Oort and Galactic Constants,"
  1998a, MNRAS, 297, 943 TNC: 112; ANC: 56; TNC/yr: 10.18; ANC/yr: 5.09
- **Olling, R.P.**,
  "The Highly Flattened Dark Matter Halo of NGC 4244,"
  1996, AJ, 112, 481 TNC: 52; ANC: 52.00; TNC/yr: 4.00; ANC/yr: 4.00

- **Olling, R.P.**,
"NGC 4244: A Low Mass Galaxy with a Falling Rotation Curve and a Flaring Gas Layer,"
1996, AJ, 112, 457 TNC: 69; ANC: 69.00; TNC/yr: 5.31; ANC/yr: 5.31
- **Olling, R.P.**,
"On the Usage of Flaring Gas Layers to Determine the Shape of Dark Matter Halos,"
1995, AJ, 110, 591 TNC: 44; ANC: 44.00 TNC/yr: 3.14; ANC/yr: 3.14
- Whitmore, B.C., Lucas, R.A., McElroy, D.B., Steinman-Cameron, T.,
Sackett, P.D., & **Olling, R.P.**,
"New Observations & Photographic Atlas of Polar-Ring Galaxies,"
1990, AJ, 100, 5 TNC: 187; ANC: 31.17; TNC/yr: 9.84; ANC/yr: 1.64
- García-Lario, P., Manchado, A., Pottasch, S.R., Suso, J., and **Olling, R.**,
"Near Infrared Survey of IRAS Sources with Colours Like Planetary Nebulae. II,"
1990, A&AS, 82, 497 TNC: 50; ANC: 10.0; TNC/yr: 2.63; ANC/yr: 0.53
- Pottasch, S.R., Bignell, C., **Olling, R.**, and Zijlstra, A.A.,
"Planetary Nebulae near the Galactic Center,"
1988, A&A, 205, TNC: 116; ANC: 29.0; TNC/yr: 5.52; ANC/yr: 1.38

IN ADVANCED STAGE OF PREPARATION

- **Olling, R.P.**, and Shaya, E.J., 2010, in final stage of preparation: to be submitted to MNRAS,
"Searching For Solar System Analogs With 21^{st} and 20^{th} Century Astrometry"
- **Olling, R.P.** and Shaya, E.J., 2010, "1% Distances to nearby Galaxies: The Rotational Parallax Method"
- **Olling, R.P.** and Shaya, E.J., , 2010, "Multiplicity Among Hipparcos Stars: Combining 20^{th} and 21^{st} Century Astrometry"

OTHER PUBLICATIONS

- **Olling R.P.** & Shaya, E.J. "SIM Science Studies: Dynamics of Nearby Galaxies & Long-Period Planetary Systems" 2009, AAS, 21441107
- **Olling R.P.** and 16 co-authors, "An Era of Precision Astrophysics: Connecting Stars, Galaxies and the Universe,"
2009, **Astro2010 Science White Paper**, #226 (2009arXiv0902.3197O)
- Shaya E., **Olling R.P.**, and 19 co-authors, "Properties of Dark Matter Revealed by Astrometric Measurements of the Milky Way and Local Galaxies,"
2009, **Astro2010 Science White Paper**, #274 (2009astro2010S.274S)
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