# Robert P. Olling: Curriculum Vitae

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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
- 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
- The importance of $H_0$ for characterizing dark energy
- Astrometric distance determination of external galaxies to 1%
- 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 $\mu$-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) (20 total)

**Selected:** (3 total)

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

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

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

**Pending:** (2 total)

**UMd**, 2008, "Wide Companions of Nearby Field Stars," **Olling (PI)** & Shaya; NSF/AAG

**UMd**, 2008, "The Tri-Axiality of the Galactic Dark Matter Distribution," **Olling (PI)** & Teuben; NSF/AAG

**Not Selected:** (15 total)

**UMd**, 2008, "Direct Trigonometric Parallax of Globular Clusters," **Olling (PI)** & Shaya; HST/Cycle 17

**UMd**, 2007, "The Tri-Axiality of the Galactic Dark Matter Distribution," **Olling (PI)**, Blitz & Teuben; NSF/AAG

**UMd**, 2007, "1% Distances to Nearby Galaxies with the "Rotational Parallax Techniques: $H_0$ & Dark Energy" **Olling (PI)** & Teuben; NASA/ATPF

**UMd**, 2007, "Three GALEX Catalogs of M31: A UV to NIR Catalog, A Yellow Supergiants Catalog & A Catalog of Extinction Curves," **Olling (PI)**, Shaya; NASA/GALEX

**UMd**, 2006, "The Tri-Axiality of the Galactic Dark Matter Distribution," **Olling (PI)**, Blitz & Teuben; NSF/AAG

**UMd**, 2006, "Stellar Multiplicity of Nearby Field Stars." **Olling (PI)**, & Hajian; NSF/AAG

**UMd**, 2006, "SIM Distances to Nearby Galaxies with the "Rotational Parallax Techniques" **Olling (PI)** & Teuben; NASA/ATP

**UMd**, 2005, "Dark Matter Halo Shapes from Flaring Gas Layers." **Olling (PI)**; NSF/AAG

**UMd**, 2005, "Stellar Multiplicity of Nearby Field Stars." **Olling (PI)**, & Hajian; NSF/AAG

**USRA/USNO**, 2005, "Identifying Likely TPF Candidates: Eliminating Problematic Stellar Binaries" **Olling (PI)**; NASA/TPF Foundation Science

**USRA/USNO**, 2005, "1% Distances to Nearby Galaxies: Implementing Rotational Parallax Techniques" **Olling (PI)** & Teuben; NASA/ATP

**USRA/USNO**, 2002, "Unifying Stellar and Interstellar Galactic Dynamics: Mapping the Velocity Field of the Milky Way" **Olling (PI)**, Hajian, Murison; NASA/LTSA

**USRA/USNO**, 2002, "Accurate SIM-based Distances to Nearby Galaxies: Implementing the "Rotational Parallax" Technique"" **Olling (PI)** & Zacharias; NASA/ATP

**Rutgers University**, 2000, "Distances to Nearby Galaxies: Anchoring the Extragalactic Distance Scale" Peterson (PI), **Olling (Deputy PI)**, *et al.* ; NASA/SIM Key Project

**Rutgers University**, 1999, "Determining the Galactic Rotation Curve with SIM, " **Olling (PI)** *et al.* ; NASA/NSF

## GRANT PROPOSALS (CoI) (9 total)

**Selected:** ( 1 total)

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

**Not Selected:** (8 total)

**UMd**, 2007, "Finding Hot Sources In and Behind the Sculptor dSph Galaxy," **Shaya (PI)** & Olling; NASA/GALEX

**UMd**, 2007, "The Proper Motion of M31," **Shaya (PI)** & Olling, HST/ACS-now-WFPC2

**USRA/USNO**, 2005, Hajian (PI), **Olling (Co-I)**, *et al.* . "Optimal Spectral Characterization of TPF Targets;" NASA's "TPF-C/Instrument Concept Studies"

**USRA/USNO**, 2004, "Investigation of TPF Candidate Stars" Johnston (PI), Mason, Hartkopf & **Olling**; NASA's TPF Foundation Science

**USRA/USNO**, 2003, The Astrometric Mapping Explorer (AMEX) mission. Johnston (PI), ..., **Olling (Co-I/science-team member)**; NASA/SMEX

**USRA/USNO**, 2003, Hajian (PI), **Olling (Co-I)**, *et al.* ; NASA/SIM Grid Star Verification

**USRA/USNO**, 2002, "An Instrument and Strategy for the Detection of Signs of Life in Extra-solar Planetary Atmospheres" Hajian (PI), **Olling (Co-I)**, *et al.* ; NASA/ASTID

**Rutgers University**, 2000, "The Cosmological Pop I Distance Scale and Related Studies of our Galaxy Based on Galactic Open Clusters and Cepheids." van Altena (PI), **Olling** *et al.* ; NASA/SIM Key Project

## ACADEMIC SERVICE

**MNRAS/ApJL/AJ/A&A/PATT:** Refereed 16 papers & 5 observing proposals '98-present

**AAAS:** Review contributions to the AAAS Science Journalism Awards September 2005

**AAS:** AAS panel member that recommends speakers for the 2006 AAS Conference 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
- Three White Papers for the ExtraSolar Planet Task Force (2007)
- Five invited oral conference contributions
- One invited conference panelist
- **68** other papers, including: **11** OBSS Technical Memorandums, **14** FAME/AMEX Technical Memorandums, **39** conference presentations, including **5** conference **talks**,
- **Thirty-two invited Colloquia**
- Five 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 9/2009

"1% Luminosity-Independent Distances to Nearby Galaxies with the Rotataional Parallax Technique," JPL/NExScI 9/2009

"Rotational Parallaxes," Michelson Science Center 5/2007

"The Shape of Dark Matter Halos," Aspen 1/1999

"The Flattened Dark Matter Halos of NGC 4244 and the Milky Way," Heidelberg 9/1996

### CONFERENCE PRESENTATIONS

1/09 AAS, Winter meeting, USA: **two** Poster Papers
1/06 AAS, Winter meeting, USA: **two** Poster Papers
1/05 AAS, Winter meeting, USA: **three** Poster Papers
10/04 USNO & Lowell Observatory, Flagstaff, USA "Astrometry in the Age of ... Large Telescopes"
5/04 Uni. of California, Berkeley, USA, "Wide Field Imaging From Space:" Poster Paper
10/03 Uni. of Maryland, USA, "The search for Other Worlds:" Poster Paper
6/03 Boston University Surveys of the Milky Way: Poster Paper
1/03 **three** Poster Papers: AAS Winter meeting, USA
7/01 Challenges for Photometry and Spectrometry with GAIA: **Talk**
2/01 WAS Winter meeting, USA: Poster Paper
1/01 AAS Winter meeting, USA: Poster Paper
6/00 AAS Summer meeting, USA: Poster Paper
1/00 AAS Winter meeting, USA: Poster Paper
9/99 'Black Holes in Binaries and Galactic Nuclei', ESO: **Talk**
6/99 AAS Summer meeting, USA: Poster Paper
6/99 AAS Summer meeting, USA: Poster Paper
7/99 'Galaxy Dynamics', Paris, France: Poster Paper
10/98 'Galactic Dynamics,' Rutgers, USA: Poster Paper
1/98 AAS Winter Meeting, USA: **Talk**
7/97 'Galactic Halos,' Santa Cruz, USA: Poster Paper
4/97 NAM, UK: Poster Paper
7/96 'Dark and Visible Matter in Galaxies and Cosmological Implications,' Sexto, Italy: **Talk**
4/96 NAM, UK: Poster Paper
1/95 AAS Winter Meeting, USA: Thesis **Talk**
10/94 'Maryland Astrophysics Conference on Dark Matter,' USA: Poster Paper
1/94 AAS Winter Meeting, USA: Poster Paper
1/93 AAS winter meeting, USA: Poster Paper
6/92 'Teton Summer School on Astrophysics,' USA: Poster Paper
89 Netherlands Astronomy Meeting: Poster Paper

### INVITED COLLOQUIA

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|---|---|---|---|
| 1/09 | GSFC, Greenbelt, MA | 10/07 | NRAO Charlottesville/UVa, VA |
| 10/05 | Uni. of Maryland, College Park, MD | 3/01 | Uni. of Maryland, College Park, MD |
| 9/01 | Uni. of Massachusetts, Amherst, MA | 3/01 | NRAO, Greenbank, WV |
| 5/00 | Am. Museum of Nat. History, NY | 4/00 | USNO, Washington |
| 1/00 | Berkeley | 1/00 | LLNL-IGPP |
| 10/99 | Rutgers University | 9/99 | NRAO, Charlottesville |
| 7/99 | MPA, Heidelberg, Germany | 2/99 | Yale University |
| 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 | University of Brighton, UK | 10/97 | University of Groningen, Netherlands |
| 5/97 | IAP, Paris, France | 1/97 | IAC, Tenerife, Spain |
| 10/96 | University of Hertfordshire, UK | 6/96 | University of Durham, UK |
| 5/96 | University of Groningen, Netherlands | 5/96 | University of Liverpool, UK |
| 2/96 | NMSU, Las Cruces | 10/95 | IAA, Granada, Spain |
| 9/95 | Columbia University | 1/95 | NRAO, Socorro |

## TEACHING EXPERIENCE

**UMd:** 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 2$^{nd}$ 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

| | |
|---|---|
| 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 64 publications can be obtained electronically at:
http://www.astro.umd.edu/∼olling/RecentPapers.html

According to ADS, my 17 refereed papers have 794 citations (11/25/2008), a refereed-citation count of 46.7 per refereed paper, and a citation count of approximately 20.6 per author-normalized refereed paper. For some of my earlier papers, I quote their "ranking" calculated from: 1) when sorted by author-normalized citations (ANC) and 2) by total number of citations (TNC), per 02/11/2008. In either case, the "ranking" is determined by selecting *all* publications from the relevant year in the main journals [ApJ, AJ, MNRAS, A&A, ApJS and A&AS] and sorting them on citation count. This is not so relevant for the recent papers as it takes a while before the statistics build up.

### REFEREED PUBLICATIONS

Unwin, S. C., ..., **Olling, R.P.**, and 34 co-authors, 2008, PASP, 120, 38
"Taking Measure of the Universe: Precision Astrometry with SIM PlanetQuest"

**Olling, R.P.**, "Accurate Extra-Galactic Distances and Dark Energy: Anchoring the Distance Scale with Rotational Parallaxes," 2007, MNRAS, 378, 1385

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

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

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

**Olling, R.P.**, Dehnen, W., "The Oort Constants Measured from Proper Motions,"
2003, ApJ, 599, 275

Salim, S., Gould, A., **Olling, R.P.**, "Astrometry Survey Missions Beyond the Magnitude Limit,"
2002, ApJ, 573, 631

**Olling, R.P.**, Merrifield, M.R., "Luminous and Dark Matter in the Milky Way,"
2001, MNRAS, 326, 1 **Top-9.5% (ANC), top-17.9% (TNC)**

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 Top-47.8% (ANC), top-28.1% (TNC)

**Olling, R.P.**, Merrifield, M.R., "Two Measures of the Shape of the Dark Halo of the Milky Way,"
2000, MNRAS, 311, 361 **Top-5.4% (ANC), top-9.7% (TNC)**

**Olling, R.P.**, Merrifield, M.R., "Refining the Oort and Galactic Constants,"
1998a, MNRAS, 297, 943 **Top-4.3% (ANC), top-6.7% (TNC)**

**Olling, R.P.**, "The Highly Flattened Dark Matter Halo of NGC 4244," 1996, AJ, 112, 481 **Top-4.9% (ANC), top-21% (TNC)**

**Olling, R.P.**, "NGC 4244: A Low Mass Galaxy with a Falling Rotation Curve and a Flaring Gas Layer," 1996, AJ, 112, 457 **Top-2.9% (ANC), top-14% (TNC)**

**Olling, R.P.**, "On the Usage of Flaring Gas Layers to Determine the Shape of Dark Matter Halos," 1995, AJ, 110, 591 **Top-6.6% (ANC), top-25% (TNC)**

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 Top-14.4% (ANC), top-2.5% (TNC)

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 Top-47% (ANC), top-25% (TNC)

Pottasch, S.R., Bignell, C., **Olling, R.**, and Zijlstra, A.A., "Planetary Nebulae near the Galactic Center," 1988, A&A, 205, 248 Top-17% (ANC), top-6.8% (TNC)

## IN ADVANCED STAGE OF PREPARATION

**Olling, R.P.**, 2009, 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.**, 2009, "1% Distances to nearby Galaxies: The Rotational Parallax Method"

**Olling, R.P.**, 2009, "Multiplicity Among Hipparcos Stars: Combining $20^{th}$ and $21^{st}$ Century Astrometry"

## OTHER PUBLICATIONS

All 25 unpublished FAME/AMEX/OBSS technical memoranda can be found at:
http://www.astro.umd.edu/ olling/index_1.htm#My_Astrometry

**Olling R.P.**, 2007arXiv0704.3059O, "Finding Solar System Analogs With SIM and HIPPARCOS,", *A White Paper for the Extrasolar Planet Task Force.*

**Olling R.P.**, 2007arXiv0704.3072O, "LEAVITT: A MIDEX-class Mission for Finding & Characterizing 10,000 Transiting Planets in the Solar Neighborhood",
*A White Paper for the Extrasolar Planet Task Force.*

Hajian,**Olling R.P.**, Behr & Cenko "Hunting for Earth-Mass Exo-Planets with the Dispersed Fourier Transform Spectrometer",
*A White Paper for the Extrasolar Planet Task Force.*

Hajian *et al.* & **Olling R.P.**, "The Dispersed Fourier Transform Spectrometer - Toward Earth-Mass Planet Detection," 2006, AAS, 68.13

**Olling R.P.**, "The Milky Way: A Connection between Stars, Galaxies and the Universe," 2006, AAS, 133.02

**Olling R.P.**, "Astrometric Binaries in the Age of the Next Generation of Large (Space) Telescopes," 2005, ASPC, 338, 272

Boboltz, D. A., *et al.* & **Olling R.P.**, "VLA Imaging of the SiO Maser Emission Toward AGB Stars: SIM PlanetQuest Preparatory Science," 2005, ASPC, 338, 46,

Johnston K.J., *et al.* & **Olling R.P.**, "The Origins Billion Star Survey (OBSS): Galactic Explorer," 2005, ASPC, 338, 46,

**Olling R.P.**, OBSS Technical Memorandum, May 2005 "OBSS Observing Modes"

**Olling R.P.**, OBSS Technical Memorandum, April 2005 "Some Possible Science with OBSS"

**Olling R.P.**, OBSS Technical Memorandum, March 2005 "The Astrometric Potential of Photon Counting Devices"

**Olling R.P.**, OBSS Technical Memorandum, Feb. 2005 "GAPS: A Ground-Based, Galactic Astrophysics Photometric Survey"

**Olling R.P.**, OBSS Technical Memorandum, Feb. 2005 "Radial Velocity Requirements for OBSS/GAIA"

**Olling R.P.**, OBSS Technical Memorandum, Dec. 2004 "*Bright* Science with OBSS"

**Olling R.P.**, OBSS Technical Memorandum, Dec. 2004 "Astrometric Detection of Cold Jupiters: OBSS versus GAIA"

**Olling R.P.**, OBSS Technical Memorandum, Oct. 2004 "Data Rate, S/N & Spectroscopy for the OBSS-A/B/C Concepts"

**Olling R.P.**, OBSS Technical Memorandum, April 2004 " OBSS/A & NASA's Origin's Research Topics: A Detailed Comparison"

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