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# List of my papers since 2006

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**Abstract:** The following list contains links to about 80 of my papers or reports since 2006, to two earlier ones from 2000 and 2004, to a few where I am a coauthor, and to a few other papers. The papers are in English or Danish, they are scientific or popular on subjects from astronomy to religion, mostly on astrometry and often on historical aspects. The list has three sections: 1) Some of the papers in arXiv, 2) Other papers in English, and 3) På dansk, mest i tidsskriftet KVANT. The sequence in each section is mostly chronological. The list is maintained to serve my own writing, not originally to be made public.

**A warning about dropbox:** Be aware of the following problem with a few remaining links to my dropbox. Links in my reports have before 2017 often been like : <https://dl.dropbox.com/u/49240691/GaiaRef.pdf> . But in early 2017 the dropbox-company suddenly without warning or explanation made such links invalid. I have then copied all files in dropbox to my institute where they are available as e.g. : <http://www.astro.ku.dk/~erik/xx/GaiaRef.pdf>. Links with ...dropbox... have generally been replaced by <http://www.astro.ku.dk/~erik/xx/qqqq.pdf> but not always. I am sorry for this inconvenience.

## 1 Some of the papers in arXiv

Papers on **astrometry** and a paper on **astrosociology**:

Høg E. 2014a, The Astrometric Foundation of Astrophysics. Abstract to the Conference Book 2014 of the Danish Astronomical Society and abstract of a review presentation. <http://arxiv.org/abs/1408.2122>

The link given herein to dropbox has become invalid and should be replaced by

Høg E. 2014b2, Absolute astrometry in the next 50 years. Report with updates until 12 June

. 36 pages

<http://arxiv.org/abs/1408.2190>

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<sup>1</sup> 2021.04.13 **Conclusion about searching for Høg in arXiv**, important is to search in "All fields" (or Authors) for **full name** Erik Høg. This gives 28 results from 1997-2019, including Erik Hoeg, and no false results! Eric Høg gives only 2 results and not me.

<sup>2</sup> Searching for Høg, the Danish letter ø can give problems. In arXiv at <http://arxiv.org/> a search on 28 March 2018 for Høg/All papers results in 588 hits with all:hg, no one is mine. Hoeg/All papers gives 6 papers where I am on 4. Høg/Authors gives one paper au:hg and not with me. Hoeg/Authors gives the same 6 papers as Hoeg/All papers. Hog/All papers gives 140 hits, about 25 are mine. Finally, Hog/Authors gives 29 papers, 25 are mine. In conclusion, Hog/Authors was best for search in arXiv. In 2020 on 20 Aug the problems for arXiv persist. **But on 25 Aug. 2020** after advice from arXiv I learnt that **advanced search** is required: Høg, E authors giving 38 hits where 4 are not me. In detail: advanced search; Høg, E all fields; or Høg, E authors; or Hog, E authors are OK. -- **In ADS in 2018** Høg was converted to Hog and both gave 952 abstracts, Hoeg gives 350 and I am on most of these. -- **January 2020:** Searching for Høg with the Danish letter ø works perfectly well on ADS and gives 223 results with E. Høg! - **April 2021:** Search on ADS for Høg, E gives 269 results.

<https://ui.adsabs.harvard.edu/#abs/arXiv:1408.2190>  
and here: <http://www.astro.ku.dk/~erik/xx/GaiaRef.pdf>

Høg E. 2014b, Absolute astrometry in the next 50 years. Report with updates until 15 December 2015.  
<http://arxiv.org/abs/1408.2190v6>

Høg E. 2014b2, Absolute astrometry in the next 50 years. Report with updates until 12 June 2017. 36 pages  
<http://arxiv.org/abs/1408.2190>  
<https://ui.adsabs.harvard.edu/#abs/arXiv:1408.2190>  
and here: <http://www.astro.ku.dk/~erik/xx/GaiaRef.pdf>  
OK wrt dropbox

Høg E. 2014c, Astrometry 1960-80: from Hamburg to Hipparcos. Proceedings of conference held in Hamburg in 2012, Nuncius Hamburgensis, Beiträge zur Geschichte der Naturwissenschaften, Band 24, 2014.  
<http://arxiv.org/abs/1408.2407>  
Dropbox: 4 non-essential links are present  
=AG2012AK1-130407-copy in 2017/

Høg E. 2013, Astrometry for Dynamics. Submitted to ESA in May 2013 as White paper proposal for a Large mission.  
<http://arxiv.org/abs/1408.3299>

Høg E. 2014e, Exo-Jupiters and Saturns from two Gaia-like missions. Contribution to the study of a Gaia successor in "Absolute astrometry in the next 50 years" at <http://arxiv.org/abs/1408.2190>.  
<http://arxiv.org/abs/1408.4341>.

Høg E. 2014f, Interferometry from Space: A Great Dream. In: Asian Journal of Physics Vol. 23, Nos 1 & 2 (2014), Special Issue on History of Physics & Astronomy, Guest Editor: Virginia Trimble.  
<http://arxiv.org/abs/1408.4668>

Høg E., Kaplan G. 2014, Solar system and small-field astrometry. Contribution to the study of a Gaia successor in "Absolute astrometry in the next 50 years" at <http://arxiv.org/abs/1408.2190>.  
<http://arxiv.org/abs/1408.3302>.  
Dropbox references changed to website

Høg E., Knude J. 2014, A Gaia successor with NIR Sensors. Contribution to the study of a Gaia successor in "Absolute astrometry in the next 50 years" at <http://arxiv.org/abs/1408.2190>.  
<http://arxiv.org/abs/1408.3305>.

Høg E. 2014, **Astrosociology: Interviews about an infinite universe**. In: Asian Journal of Physics Vol. 23, Nos 1 & 2 (2014), Special Issue on History of Physics & Astronomy, Guest Editor: Virginia Trimble.  
<http://arxiv.org/abs/1408.4795>  
NB: The given email is obsolete, correct is ehoeg@hotmail.dk  
OK wrt dropbox

Høg E. 2015b, The Baltic Meetings 1957 to 1967. In: Nuncius Hamburgensis, Volume 38 (2018), Editor Gudrun Wolfschmidt. 11 pp.  
<http://arxiv.org/abs/1512.01925>  
Dropbox links (7) changed to website  
=AbakErik0 in 2017/

Høg E. 2015c, **Archives on astronomy from the 1950s.**

<https://zenodo.org/records/10900266>

Dette er i 2024 lagt på Zenodo men ligger stadig på NBIs server.

( <https://arxiv.org/abs/2309.09746> with many links to files at /xx/

<http://www.astro.ku.dk/~erik/xx/Archive1950s.pdf> )

Høg, E. 2018, **Copenhagen Observatory and Brorfelde.**

<http://www.astro.ku.dk/~erik/xx/Archive1950sOverview.pdf>

Høg, Erik 2017, Young astronomer in Denmark 1946 to 1958. In: Wolfschmidt, Gudrun (Hg.): *Astronomie im Ostseeraum – Astronomy in the Baltic*. Proceedings der Tagung des Arbeitskreises Astronomiegeschichte in der Astronomischen Gesellschaft in Kiel 2015. Hamburg: tredition (Nuncius Hamburgensis – Beiträge zur Geschichte der Naturwissenschaften; Band 38) 2018 (30 pp). <http://arxiv.org/abs/1512.01924>

Corrected wrt dropbox

= arXBalticDan in2015/BalticMeetings

Høg E. 2017, GIER: A Danish computer from 1961 with a role in the modern revolution of astronomy. In: *Nuncius Hamburgensis*, Volume 21, 294-321. Editor Gudrun Wolfschmidt. <https://arxiv.org/abs/1704.05828>

Only 1 dropbox link - change not needed

K. E. Heintz, J. P. U. Fynbo, E. Høg, P. Møller, J.-K. Krogager, S. Geier, P. Jakobsson, L. Christensen 2018, Unidentified quasars among stationary objects from Gaia DR2. *Astronomy & Astrophysics*, Volume 615, id.L8, 9 pp. <http://adsabs.harvard.edu/abs/2018A%26A...615L...8H>

9 pages, 4 figures, 1 table, 1 appendix

Further papers in arXiv are found below.

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## 2 Other papers in English

**The Tycho-2 Catalogue** 2000, The website of the catalogue here: [Tycho-2 Catalogue](#). with information and links.

### Surveying the sky

My scientific work during 50 years on the website of the Niels Bohr Institute:

<http://www.nbi.ku.dk/english/www/>

or

<https://www.nbi.ku.dk/english/www/astrometry/surveying/>

and in Danish at

<https://www.nbi.ku.dk/hhh/>

and in an article in Danish in 2010, see below

Høg E. 2004, **The depth of the heavens: Belief and knowledge during 2500 years**

*Europhysics News*, vol. 35, issue 3, pp. 76-80

<http://adsabs.harvard.edu/abs/2004ENews..35...76H>

Høg E. 2008, **Astrometry and optics during the past 2000 years**

November 2008, 8+94 pages, a collection of reports at

<http://arxiv.org/abs/1104.4554v2> .

**CONTENTS of Nos. 1-9 from 2008, 94 pages**

Overview with links to all reports

1. Bengt Strömgren and modern astrometry:
  - Development of photoelectric astrometry including the Hipparcos mission
  - 1A. Bengt Strömgren and modern astrometry ... Short version
  - 2. Lennart Lindegren's first years with Hipparcos - See also separate below
  - 3. Miraculous approval of Hipparcos in 1980
  - 4. From the Roemer mission to Gaia
  - 5. Four lectures on the general history of astrometry
  - 6. Selected astrometric catalogues - updated to arXiv **May 2017**
  - 7. Astrometric accuracy during the past 2000 years - updated to arXiv **May 2017** - See also separate below:
    - Appendix to 7: "Astrometric accuracy during the past 2000 years"
  - 8. 400 Years of Astrometry: From Tycho Brahe to Hipparcos - See also separate below
  - 9. 650 Years of Optics: From Alhazen to Fermat and Rømer - See also separate below

No. 2 - 2008.03.31:

Høg E. 2008, Lennart Lindegren's first years with Hipparcos.

<http://www.astro.ku.dk/~erik/Lindegren.pdf> This is an update of report no. 2 on p. 25 in

<http://arxiv.org/abs/1104.4554v2>

No. 7 – 2008.11.25: Astrometric accuracy during the past 2000 years - Outdated in 2016 and 2017, see below.

<http://www.astro.ku.dk/~erik/Accuracy.pdf>

No. 8 - 2009

Høg E. 2009, **400 Years of Astrometry: From Tycho Brahe to Hipparcos.**

Experimental Astronomy, Volume 25, Issue 1-3, pp. 225-240.

DOI: [10.1007/s10686-009-9156-7](https://doi.org/10.1007/s10686-009-9156-7)

Bibcode: [2009ExA....25..225H](https://ui.adsabs.org/abs/2009ExA....25..225H)

No.9 – October 2008:

Høg E. 2008, **650 Years of Optics: From Alhazen to Fermat and Rømer.**

<http://www.astro.ku.dk/~erik/HoegAlhazen.pdf>

Høg E. 2016, Astrometric accuracy during the past 2000 years - Outdated in 2017

ABSTRACT: The development of astrometric accuracy since the observations by Hipparchus, about 150 B.C., has been tremendous and the evolution has often been displayed in a diagram of accuracy versus time. Some of these diagrams are shown and the quite significant differences are discussed. A diagram with new information on the oldest catalogues is recommended and documented. <http://www.astro.ku.dk/~erik/xx/Accuracy2016.pdf>

Høg E. 2016, Selected astrometric catalogues - Outdated in 2017

ABSTRACT: A selection of astrometric catalogues are presented in three tables for respectively positions, proper motions and trigonometric parallaxes. This report was revised in 2016 with new information about the catalogues before 1730 AD. <http://www.astro.ku.dk/~erik/xx/AstrometricCats2016.pdf>

Høg E. 2017a, Astrometric accuracy during the past 2000 years – Partly outdated in 2020

Placed on arXiv: <http://arxiv.org/abs/1707.01020v1>

ABSTRACT: The development of astrometric accuracy since the observations by Hipparchus, about 150 B.C., has been tremendous and is here thoroughly documented. The evolution has often been displayed in a diagram of accuracy versus time. Some of these diagrams are shown and the quite significant differences are discussed. A diagram with new information on the oldest catalogues is recommended. This report No.7 from Høg (2008) was revised in 2017: <http://www.astro.ku.dk/~erik/xx/Accuracy2017bw.pdf>

Some changes since 2008 stand red in:

<http://www.astro.ku.dk/~erik/xx/Accuracy2017.pdf> .

Placed on arXiv: <http://arxiv.org/abs/1707.01020v1>

Høg E. 2017b, Selected Astrometric Catalogues.  
<http://www.astro.ku.dk/~erik/xx/AstrometricCats2017.pdf>  
 and it is placed at <http://arxiv.org/abs/1706.08097>

Høg E. 2020, Astrometric accuracy during the past 2000 years  
 Placed on arXiv: <http://arxiv.org/abs/1707.01020>

Høg E. 2011, **Astrometry during the past 100 years**  
 April 2011, 8+46 pages, a collection of reports at  
<http://esoads.eso.org/abs/2011arXiv1105.0634H>

**CONTENTS of Nos. 10-13 from 2011, 46 pages**

Overview with links to all reports  
 3.2 Miraculous approval of Hipparcos in 1980: (2)  
 10. Astrometry lost and regained  
 11. Roemer and Gaia  
 12. Surveying the sky - in English and Danish  
 13. Lectures on astrometry

No. 3.2:

Høg E. 2011a, **Miraculous approval of Hipparcos in 1980: (2)**,  
 at <http://www.astro.ku.dk/~erik/HipApproval.pdf>  
 and as article no. 3.2 in <http://arxiv.org/abs/1105.0634>

No.10 of these reports has been published as

Høg E. 2011b, **Astrometry lost and regained.**  
 Baltic Astronomy, Vol. 20, 221-230, 2011.  
<http://esoads.eso.org/abs/2011BaltA..20..221H> and at:  
<http://www.astro.ku.dk/~erik/xx/2011BaltA.pdf>

No. 11 of these reports

has been placed separately with

Høg E. 2011, "**Astrometry history: Roemer and Gaia**"  
 26 pp at <http://arxiv.org/abs/1105.0879>  
 and with code number GAIA-CZ-TN-NBI-EH-188  
 at <https://www.cosmos.esa.int/web/gaia/public-dpac-documents>

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Høg, E., C. Fabricius, V.V. Makarov, S. Urban, T. Corbin, G. Wycoff, U. Bastian, P. Schwekendiek, & A. Wicenec 2000,  
 The Tycho-2 Catalogue of the 2.5 Million Brightest Stars. Astron. Astrophys. 355.2, P L19-L22 (2000)  
 Tycho-2 is available at <http://www.astro.ku.dk/~erik/Tycho-2/>  
 or in Strasbourg at <http://cdsarc.u-strasbg.fr/viz-bin/Cat?I/259>  
 The s.e. of the motions is 2.5 mas/yr, or about 1 arcsec for the positions if they are projected e.g., 400 years back in  
 time as needed sometimes.

E. Høg, 2013, Origins of Gaia. 6 pp. The history of events before and after 1993 for GAIA/Roemer and,  
 more generally, the history of modern astrometry and of optical interferometry from space are briefly  
 reviewed.... <http://www.astro.ku.dk/~erik/xx/GaiaOrigins.pdf>

E. Høg, 2014, Support for nomination of Lennart Lindegren for the Brouwer award. 2 pp. He was first nominated for  
 this award in 2010 by Francois Mignard and others, including myself, but the 2011 award went to an Italian

colleague Andrea Milani. Nomination was repeated later on but all in vain. My present letter was for one of the later nominations.

<http://www.astro.ku.dk/~erik/xx/LindegrenNomin.pdf>

Høg, Mora & Knude 2015, Astrometric performance of a NIR option. 7pp. At:

<http://www.astro.ku.dk/~erik/xx/GaiaNIR2015.pdf>

Heintz, K.E., Fynbo, J.P.U., & Høg, E. 2015, A study of purely astrometric selection of extragalactic point sources with Gaia. Published in *AstronAstrophys.* Volume 578, June 2015, A91, 4pp. DOI

<http://dx.doi.org/10.1051/0004-6361/201526038> and at

<http://arxiv.org/abs/1503.02874>

E. Høg, 2016, NIR detectors with TDI. 12 pp. <http://www.astro.ku.dk/~erik/xx/GaiaNIRCorr.pdf>

Gaia collaboration, Prusti T. et al., 2016, The Gaia mission. *Astronomy & Astrophysics*, Volume 595, id. A1, 36 pp.

<https://ui.adsabs.harvard.edu/abs/2016A%26A...595A...1G/abstract>

E. Høg, 2017, Origin and basis of GaiaNIR. 3 pp. <http://www.astro.ku.dk/~erik/xx/GaiaNIRBasis.pdf>

Høg E. 2016c, The Landgrave in Kassel and Tycho Brahe on Hven. In the proceedings of a meeting in September 2016 in Bogota: *Astronomía Dinámica en Latinoamérica* in *RevMexAA(SC)* Vol 50, 2018

<http://www.astro.ku.dk/~erik/xx/Erik2.Hoeg.Oral.Tycho.pdf>

and at <https://zenodo.org/records/10726364>

Høg E. 2016d, From the Landgrave in Kassel to Isaac Newton. In the proceedings of a meeting in September 2016 in Bogota: *Astronomía Dinámica en Latinoamérica* in *RevMexAA(SC)* Vol 50, 2018.

<http://www.astro.ku.dk/~erik/xx/Erik3.Hoeg.Poster.pdf>

and at <https://zenodo.org/records/10726364>

Høg E. 2016e, Absolute Astrometry in the next 50 Years - II. In the proceedings of a meeting in September 2016 in Bogota: *Astronomía Dinámica en Latinoamérica* in *RevMexAA(SC)* Vol 50, 2018.

<http://www.astro.ku.dk/~erik/xx/Erik1.Hoeg.Invited.Abs.pdf>

At the meeting in Bogota I held three talks on invitation and showed a poster. The three papers are published in the proceedings of the last ADeLA2016@BOG and are available in *Revista Mexicana de Astronomía y Astrofísica* and in the web page: [http://www.astrosu.unam.mx/rmaa/RMxAC..50/rmsc50\\_frameset.html](http://www.astrosu.unam.mx/rmaa/RMxAC..50/rmsc50_frameset.html)

Hobbs, David, Høg, Erik, Mora, Alcione et al. 2016, GaiaNIR: Combining optical and Near-Infra-Red (NIR) capabilities with Time-Delay-Integration (TDI) sensors for a future Gaia-like mission, an answer to ESA's call for new "Science Ideas" to be investigated in terms of feasibility and technological developments.

<http://arxiv.org/abs/1609.07325>

Hobbs, D. et al. 2016, GaiaNIR: Combining optical and Near-Infra-Red (NIR) capabilities with Time-Delay-Integration (TDI) sensors for a future Gaia-like mission. Our proposal to ESA's call for "New Science Ideas" to develop NIR detectors with TDI mode. 27 pages

arXiv - <http://adsabs.harvard.edu/abs/2016arXiv160907325H>

Hobbs, David, 2017, GaiaNIR - Scientific Requirements Document. 30 pages

<http://www.astro.ku.dk/~erik/xx/GAIA-NIR-SCI-REQ-2.pdf>

ESA 2017, Press release on 21 April 2017. <http://sci.esa.int/cosmic-vision/59040-esa-identifies-new-science-ideas-for-future-space-missions/>

Se evt. email til Kristian P. 2017.07.01.

Hobbs, D., & Høg, E. 2017, GaiaNIR -- A future all-sky astrometry mission. In: Astrometry and Astrophysics in the Gaia Sky, Proceedings IAU Symposium No. 330, 2017. 5 pages  
<http://www.astro.ku.dk/~erik/xx/GaiaNIR.NiceHobbs.pdf>

Høg E. 2017, After 64 years dedicated to astrometric instrumentation, a Gaia successor is in sight.  
 Abstract with a link to the poster. <http://www.astro.ku.dk/~erik/xx/Poster64Abstract.pdf>

2016: I am coauthor on several papers based on the Gaia Data Release,  
 e.g. :

Gaia Collaboration; Brown, A. G. A.; Vallenari, A.; Prusti, T.; de Bruijne, J. H. J.; Mignard, F.; Drimmel, R.; Babusiaux, C.; Bailer-Jones, C. A. L.; Bastian, U.; and 582 coauthors 2016,

**Gaia Data Release 1. Summary of the astrometric, photometric, and survey properties.**

Astronomy & Astrophysics, Volume 595, id.A2, 23 pp.

and: **The Gaia mission**, in: A&A **Volume** 595, November 2016. 36 pp. <http://arxiv.org/abs/1609.04153>

Høg E. 2018, After 65 years dedicated to astrometric instrumentation, a Gaia successor is in sight.  
 Abstract with a link to the poster. <http://www.astro.ku.dk/~erik/xx/Poster65Abstract.pdf>

Høg E. 2018, A Danish computer from 1961 with a role in the modern revolution of astronomy. A poster presented at conferences in Lund and Nice in 2017.

Abstract with a link to the poster. <http://www.astro.ku.dk/~erik/xx/PosterGIERAbstract2.pdf>

Direct link to the poster itself <http://www.astro.ku.dk/~erik/xx/PosterGIER.pdf>

Direct link to the text of the paper with the same title <https://arxiv.org/abs/1704.05828>

**Here follow three reports on the early history of Hipparcos from 1964 to 1980:**

#1: Høg E. 2017f, Interviews about the creation of Hipparcos. 20 pp including an appendix of 8 pp.  
<http://www.astro.ku.dk/~erik/xx/HipCreation.pdf>

#2 : Høg E. 2018, From TYCHO to Hipparcos 1975 to 1979. 21 pp.  
<http://www.astro.ku.dk/~erik/xx/Hip1975.pdf>

#3 : Høg E. 2017d, Miraculous 1980 for Hipparcos. 9 pp.  
<http://www.astro.ku.dk/~erik/xx/HipApproval5.pdf>

Previous versions of these three reports are available at links where .pdf is replaced by red.pdf. ???

These three reports are placed in one submission to arxiv:

Høg E. 2018, Astrometry history: Hipparcos from 1964 to 1980. 52 pp.

<http://arxiv.org/abs/1804.10881>

<http://www.astro.ku.dk/~erik/xx/Hip64arXiv.pdf>

Høg E. 2018, Archives on astronomy from the 1950s. 11 pp. Available at  
<http://www.astro.ku.dk/~erik/xx/Archive1950s.pdf>

**85-year birthday** in June 2017 on the institute website:

[http://www.nbi.ku.dk/english/namely\\_names/](http://www.nbi.ku.dk/english/namely_names/)

[http://www.nbi.ku.dk/english/namely\\_names/2017/at-the-age-of-85-year-old-erik-hoeg-is-planning-a-satellite-to-be-launched-in-20-years/](http://www.nbi.ku.dk/english/namely_names/2017/at-the-age-of-85-year-old-erik-hoeg-is-planning-a-satellite-to-be-launched-in-20-years/)

og på dansk her nedenfor

Høg E. 2018, **The astrometric foundation of astrophysics : an international obligation.** 2 pp. Available at

<http://www.astro.ku.dk/~erik/xx/GaiaSuccV.pdf>

Høg E. 2018, Das Alter der Welt. In German 6 pages. In: Sterne und Weltraum, Oktober 2018, Welt der Wissenschaft: Essay. Available at <http://www.astro.ku.dk/~erik/xx/AlterDerWelt.pdf>

Høg E., 2019, Exoplanets and Gaia astrometry. 14 pp at <http://www.astro.ku.dk/~erik/xx/exo3.pdf>

McArthur, B., Hobbs, D., Høg, E., Makarov, V., Sozzetti, A., Brown, A., and 17 coauthors 2019, **All-Sky Near Infrared Space Astrometry**. White Paper to the National Academy of Sciences (NAS) Committee for Decadal Survey on Astronomy and Astrophysics 2020 (Astro2020), 7 pp at <http://arxiv.org/abs/1904.08836> and directly at <http://www.astro.ku.dk/~erik/xx/WhitePaperNIRSpaceAstrometry.pdf>

Høg, E., Hobbs, D. 2019, **Gaia Successor with International Participation**. Abstract of a talk submitted to the Annual Danish Astronomy Meeting on May 2-3. Available at <http://www.astro.ku.dk/~erik/xx/GaiaSucTalk.pdf>

Hobbs, D., ... Høg, E. (14 authors) 2019, **Development of Scanning NIR Detectors for Astronomy**. Astro2020 Activity, Project of State of the Profession Consideration (APC) White Paper: All-Sky Near Infrared Space Astrometry. State of the Profession Considerations. 6 figures, 14 pages at <https://arxiv.org/abs/1907.05191>

Høg, E., Hobbs, D. 2019, **Gaia Successor with International Participation**. Abstract of a poster submitted to the Annual Meeting of the Astronomische Gesellschaft on Sept. 16-20 in Stuttgart and to the symposium *Journées 2019* in Paris on Oct. 7-9. Available at <http://www.astro.ku.dk/~erik/xx/PosterA2019Abstr.pdf> , including a link to the poster.

Høg, E., Hobbs, D. 2019, **Gaia Successor with International Participation**. Proceedings of the symposium *Journées 2019*, Astrometry, Earth Rotation, and Reference Systems in the GAIA era, in Paris on Oct. 7-9, p. 49-53, edited by C. Bizouard. At <http://www.astro.ku.dk/~erik/xx/ParisHoeg2019.pdf> (and <http://www.astro.ku.dk/~erik/xx/GaiaSucc2019.pdf> ) Available also in a poster presented in Stuttgart and Paris: <http://www.astro.ku.dk/~erik/xx/PosterA2019Abstr.pdf>

Hobbs, D. et al. 2019, **All-Sky Visible and Near Infrared Space Astrometry**. **ESA Voyage 2050 White Paper**. [arXiv:1907.12535](https://arxiv.org/abs/1907.12535) 25 pages, 4 figures.

**Authors:** David Hobbs, Anthony Brown, Erik Høg, Carme Jordi, Daisuke Kawata, Paolo Tanga, Sergei Klioner, Alessandro Sozzetti, Łukasz Wyrzykowski, Nic Walton, Antonella Vallenari, Valeri Makarov, Jan Rybizki, Fran Jiménez-Esteban, José A. Caballero, Paul J. McMillan, Nathan Secrest, Roger Mor, Jeff J. Andrews, Tomáš Zwitter, Cristina Chiappini, Johan P. U. Fynbo, Yuan-Sen Ting, Daniel Hestroffer, Lennart Lindgren , et al. (5 additional authors not shown)

Abstract: A new all-sky visible and Near-InfraRed (NIR) space astrometry mission with a wavelength cutoff in the K-band is not just focused on a single or small number of key science cases. Instead, it is extremely broad, answering key science questions in nearly every branch of astronomy while also providing a dense and accurate visible-NIR reference frame needed for future astronomy facilities. For almost... ▽ More

Submitted 26 July, 2019; originally announced July 2019.

Niels Bohr Institutet meddeler d. 19. september 2019:

[https://www.nbi.ku.dk/navnlig\\_t\\_navne/2019/erik-hoeg-modtager-preis-der-astronomischen-gesellschaft/](https://www.nbi.ku.dk/navnlig_t_navne/2019/erik-hoeg-modtager-preis-der-astronomischen-gesellschaft/)

The Niels Bohr Institute informs on 19 September 2019:

[https://www.nbi.ku.dk/english/namely\\_names/2019/erik-hoeg-receives-prestigious-scientific-prize-for-a-lifelong-commitment-to-measuring-the-universe/](https://www.nbi.ku.dk/english/namely_names/2019/erik-hoeg-receives-prestigious-scientific-prize-for-a-lifelong-commitment-to-measuring-the-universe/)



Høg, E. 2019, **Instrument Development Prize from the Astronomische Gesellschaft**. The prize for 2019 was awarded to Lennart Lindegren, Michael Perryman and Erik Høg at the annual meeting of the AG in Stuttgart:  
<http://www.astro.ku.dk/~erik/xx/InstrumentPrize2019Award.pdf>

Høg E. 2019, **Astrometric accuracy during the past 2000 years**.  
 The development of astrometric accuracy since the observations by Hipparchus, about 150 B.C., has been tremendous and is here shown in a new simplified diagram: <http://www.astro.ku.dk/~erik/xx/Accuracy2019.pdf>  
 Placed on arXiv at: <http://arxiv.org/abs/1707.01020>

Høg E. 2019, **The road from meridian circles to Gaia and beyond**. Abstract of seminar to be held in 2020 and information on a Gaia successor with international participation:  
<http://www.astro.ku.dk/~erik/xx/MCtoGaiaAbstract.pdf>

Høg E. 2020, **The road from meridian circles to Gaia and beyond**. Presentation by Erik Høg at TU Berlin on 30 January 2020, here are given a pdf version, a prologue and references:  
<https://www.astro.ku.dk/~erik/xx/MCtoGaiaPDF.pdf>  
 The pdf version: <http://www.astro.ku.dk/~erik/xx/MCtoGaia.pdf>

Hobbs D., Brown A., Høg E., ... Vaccari M (30 authors) 2021,  
**All-sky visible and near infrared space astrometry**.  
 In: Experimental Astronomy, 61 pp  
 At: <https://doi.org/10.1007/s10686-021-09705-z> or as a PDF  
 here <https://link.springer.com/content/pdf/10.1007/s10686-021-09705-z.pdf>

Høg E. 2021, **The road from meridian circles to Gaia and beyond**.  
 A seminar held online at the universities in Potsdam and Perth.  
 The abstract: <http://www.astro.ku.dk/~erik/xx/MCtoGaiaAbstract2021.pdf>  
 The slides with references to documentation, and a new slide at the end:  
<http://www.astro.ku.dk/~erik/xx/MCtoGaiaPotsdamPerth2021.pdf> ,  
 recording from the talk in Perth, introduction by Andreas Wicenec + talk + questions = 4+48+4 minutes:  
[https://www.dropbox.com/s/e9z1qcikojc7s86/Erik\\_H%C3%B8g\\_ICRAR-UWA\\_16\\_03\\_21.mp4?dl=0](https://www.dropbox.com/s/e9z1qcikojc7s86/Erik_H%C3%B8g_ICRAR-UWA_16_03_21.mp4?dl=0)

Høg E. 2021, **GaiaNIR and ESA in 2021**.  
 2 pp at: <http://www.astro.ku.dk/~erik/xx/GaiaNIR2021.docx>

Høg E. 2021, **Return to Hamburg of the Perth archive**.  
 From Bergedorfer Zeitung in July 2021  
<http://www.astro.ku.dk/~erik/xx/BergedorferZeitung.pdf>

Høg E. 2021, **Naming the Gaia successor mission**. <http://www.astro.ku.dk/~erik/xx/GaiaRefNIRName.pdf>

Høg E. 2021, **The Gaia Successor in 2021**.  
 3 pp at: <http://arxiv.org/abs/2107.07177> [astro-ph.IM]  
<http://www.astro.ku.dk/~erik/xx/GaiaSuccessor2021.pdf>

Perryman M. & Høg E. 2022, **Interviews about modern astrometry**.  
<http://www.astro.ku.dk/~erik/xx/Interviews.pdf>  
 Direct link to the project interviews:  
<https://www.michaelperryman.co.uk/gaia-project-interviews>

Høg E. 2022, **Interviews about modern astrometry**.  
<https://arxiv.org/abs/2208.09332>

Direct link to the project interviews:

<https://www.michaelperryman.co.uk/gaia-project-interviews>

E. Høg 2022, **Letter on Gaia.**

<http://www.astro.ku.dk/~erik/xx/hoeg3-letter.pdf>

E. Høg 2023, **A very brief review of 70 years with astrometry.**

Invited presentation for the annual RAS National Astronomy Meeting in Cardiff

1 p. with a short video

[http://www.astro.ku.dk/~erik/xx/RAS\\_Fellow.pdf](http://www.astro.ku.dk/~erik/xx/RAS_Fellow.pdf)

E. Høg 2023, **A brief review of 70 years with astrometry - From meridian circles to Gaia and beyond.**

Presentation for the meeting in Lund on 18-20 July 2023: Science and technology roadmap for µas studies of the Milky Way. <http://www.astro.ku.dk/~erik/xx/MCtoGaiaLund3.pdf> 5 pp. including references.

With a video <http://www.astro.ku.dk/~erik/xx/MCtoGaiaLund.mp4>

Høg E. 2023, **A review of 70 years with astrometry.**

Invited review for Astrophysics and Space Science. 40 pp.

Submitted in October.

<http://www.astro.ku.dk/~erik/xx/70yrsApwithFigures.pdf>

<https://rdcu.be/dzobV>

<https://rdcu.be/dzp2o>

<http://www.astro.ku.dk/~erik/xx/70yrsApOnline.pdf>

Høg E. 2024, **A review of 70 years with astrometry.**

Research Memoir

Invited review for Astrophysics and Space Science. 32 pp. 23 figures

<https://rdcu.be/dzp2o> Only online

Final version of manuscript, 48 pp. 23 figures: <https://arxiv.org/abs/2402.10996>

<https://doi.org/10.1007/s10509-024-04285-8>

Manuscript with **updates in red** as might be of interest for readers of early versions:

<https://zenodo.org/records/10697986>

Same version with updates since 17 Oct. 2023 in red:

<http://www.astro.ku.dk/~erik/xx/70yrsApReviewRed.pdf>

Link to the website of GaiaNIR

<https://www.astro.lu.se/GaiaNIR>

Høg E. 2024, **GaiaNIR: Note on processing and photometry.**

17 pages, 3 figures, 18 Aug. 2024, v3

<http://www.astro.ku.dk/~erik/xx/LundideasXA.pdf>

<https://arxiv.org/abs/2312.00488>

15 pages, 2 figures, 30 November 2023. v1

23 July 2023 version 1: <http://www.astro.ku.dk/~erik/xx/LundNote.pdf>

Høg E. 2024, **Exotic Objects.**

<http://www.astro.ku.dk/~erik/xx/Exotic.pdf>

Høg E. 2024, **Interest in Gaia and GaiaNIR.**

<http://www.astro.ku.dk/~erik/xx/Ggroup.pdf>

Høg E. 2024, **Astrometric Accuracy of Positions.**

On the historical development including the latest about Gaia

8 pages, 5 figures

<https://arxiv.org/abs/2405.02017>

<http://www.astro.ku.dk/~erik/xx/Accur.pdf>

Høg E. 2024, **Accuracy of Positions and Parallaxes.**

2 diagrams

<https://zenodo.org/records/10977283>

Høg E. 2024, **List of my papers since 2006.** 15 pp.

<http://www.astro.ku.dk/~erik/xx/arXivHoeg.pdf>

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## Various other papers:

Bastian U., Gilmore G., Halbwachs J.-L. et al. 1993, ROEMER - Proposal for the Third Medium Size ESA Mission (M3). 32 pp. <https://zenodo.org/records/10500558>

Lindgren L., Perryman M., Bastian U. et al. 1993, GAIA - Global Astrometric Interferometer for Astrophysics. 6 pp. <https://zenodo.org/records/10500610>

Kovalevsky J. 2009, The ideas that led ESRO to consider a space astrometry mission.

<https://zenodo.org/records/10506461>

Report at <https://www.cosmos.esa.int/web/gaia/selected-papers-articles-reports>

and directly at <https://www.cosmos.esa.int/documents/29201/297049/Kovalevsky2009.pdf>

and at <https://www.astro.ku.dk/~erik/Kovalevsky2009.pdf>

Lindgren L. 1978: Photoelectric Astrometry - a Comparison of Methods for Precise Image Location. IAU Coll. No. 48, 21 pp. <https://zenodo.org/records/10493823> . There is no source given on ADS.

Matthew J. F. , Luke A. B., J. Berian J. & Geraint F. L., 2007,

**Expanding Space: the Root of all Evil?** <https://arxiv.org/pdf/0707.0380.pdf>

ESA 2017, CDF Study Report, GaiaNIR Study to Enlarge the Achievements of Gaia with NIR Survey. 284 pp.

Available at [http://www.astro.ku.dk/~erik/xx/GaiaNIR\\_CDF\\_study\\_report.pdf](http://www.astro.ku.dk/~erik/xx/GaiaNIR_CDF_study_report.pdf)

## 3 På dansk mest i tidsskriftet KVANT

En landmåler i himlen

Mit videnskabelige arbejde gennem 50 år: På Niels Bohr Institutets hjemmeside:

<http://www.nbi.ku.dk/hhh/> "Erik Høg - Landmåling i himlen" og i en artikel:

6pp (Download 1.41 Mb) <http://www.kvant.dk/upload/kv-2010-3/kv-2010-3-EH-astrometri.pdf>

Findes i nummer: Kvant 3, 2010

Erik Høg

Erindringer om 50 år med astrometrien, der begyndte ved en høstak syd for Holbæk og førte til bygning af to satellitter. Et videnskabeligt højdepunkt er stjernekatologet Tycho-2, der nu er helt uundværligt ved styring af satellitter og ved astronomiske observationer.

### Om Erik Høg

På Niels Bohr Institutets hjemmeside:

#### Landmåling på himlen

<https://nbi.ku.dk/hhh/astrometri/landmaaling/>

Erik Høg, på engelsk:

#### Young astronomer in Denmark 1946 to 1958

<https://browse.arxiv.org/pdf/1512.01924.pdf>

#### Astrometri fra antikken til i dag

7pp (Download 1.16 Mb) <http://www.kvant.dk/upload/kv-2011-3/kv-2011-3-EH-astrometri.pdf>

Findes i nummer: Kvant 3, 2011

Erik Høg

Der er hidtil kun opsendt en eneste astrometrisk satellit, Hipparcos, og dens observationer fra 1989-93 betød et kvantespring med hensyn til nøjagtighed og antal af stjerner med nøjagtigt målte afstande, egenbevægelser og positioner. I 2013 vil ESA opsende en endnu større astrometrisk satellit, Gaia, som ventes at betyde et nyt kvantespring for astrometrien. Jeg vil i det følgende skildre astrometriens udvikling og dens betydning for astronomien.

#### Gaia-missionens snørklede tilblivelse

5pp (Download 1.44 Mb) <http://www.kvant.dk/upload/kv-2013-4/kv-2013-4-EH-Gaia.pdf>

Findes i nummer: Kvant 4, 2013

Erik Høg

I december 2013 opsendes en ny stor astrometrisk satellit: Gaia. Den skal ligesom den første astrometriske satellit Hipparcos, opsendt i 1989, måle stjerners positioner, bevægelser og afstande men den bliver én million gange så effektiv. Allerede mens Hipparcos observerede, fødtes idéen til en forbedret satellit. Her fortælles hvordan en række idéer til astrometri i rummet under skiftende projektnavne som 'Roemer' og 'GAIA', og gennem et indviklet forløb med mange fejltagelser, endte med at blive til virkelighed med Gaia-satellitten.

#### 2012: Universets begyndelse

Af Erik Høg, Peter Laursen, Johan Samsing, Niels Bohr Institutet - En artikel i Kvant, marts 2012

Artiklen beskriver Universets udvikling siden Big Bang for 13,7 milliarder år siden.

6pp <http://www.astro.ku.dk/~erik/xx/kv121-EH-universets-begyndelse.pdf>

#### Hjørnестenen Gaia er i bane

Af Erik Høg, Niels Bohr Institutet - En artikel i Kvant, september 2014

Den 19. december 2013 blev Gaia anbragt i en bane 1,5 millioner km fra Jorden til astrometrisk måling af en milliard stjerner. De første målinger viser, at målsætningen for missionen vil holde, selvom der var alvorlige problemer i indkøringsfasen.

4 pp.(Download 1.6 Mb) <http://www.astro.ku.dk/~erik/xx/kv143-EH-Gaia.pdf>

#### Landgreven i Kassel og Tycho Brahe på Hven

10pp (Download 4.44 Mb)

<http://www.astro.ku.dk/~erik/xx/kvEH-landgreven-Kassel.pdf>

and at <https://zenodo.org/records/10726364>

Findes i nummer: Kvant 3, 2016

Erik Høg

2021: **Det observerbare univers - og det udenfor**

4pp (Download 2.6 Mb)

<http://www.astro.ku.dk/~erik/xx/kv211-EH.pdf>

Findes i nummer: Kvant 1, marts 2021

Trykfejl i artiklen ved reference [2] idet tilden desværre mangler ved ~erik

**Læs hellere** link til hele artiklen på 22 sider, 1.8 MB:

<http://www.astro.ku.dk/~erik/xx/Udenfor.pdf>

Erik Høg

2021: **Er det Solens skyld?**

<http://www.kvant.dk/kv214-EH-Klima.pdf>

4pp, om problemerne med klima og miljø

Findes i Kvant, december 2021

Erik Høg

Erik Høg 2021, **Tanker om menneskets fremtid - Hvor galt vil det gå?**

4pp, <http://www.astro.ku.dk/~erik/xx/Tanker.pdf>

2022: **Tycho Brahe og den nye stjerne.**

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Tycho.pdf>

9pp,

Findes i Kvant, juni 2022

Erik Høg

Erik Høg 2022: **Om dansk astrometri efter Tycho Brahe.**

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Efter Tycho.pdf>

4pp,

Findes i Kvant, juni 2022

Erik Høg

<http://www.kvant.dk/kv214-EH-Klima.pdf???>

**Kort:**

**Tycho Brahe og den nye stjerne.**

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Tycho.pdf>

**Om dansk astrometri efter Tycho Brahe.**

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Efter Tycho.pdf>

Findes i Kvant, Tidsskrift for Fysik og Astronomi, juni 2022

Online versions are here:

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Tycho-online.pdf>

<http://www.astro.ku.dk/~erik/xx/kv222-EH-Efter Tycho-online.pdf>

Her er den så, og din kommentar er velkommen.

Se s.13-14 om Lennart Lindegren.

**Ny astrometri revolutionerer hele astronomien**

En artikel til Universitetets Almanak for 2024

Erik Høg feb. 2023

<http://www.astro.ku.dk/~erik/xx/Alma.pdf>

To beretninger om Brorfelde og Lund Observatorier

Erik Høg marts 2023 9+3 sider

**Om meridiankredse og huse i Brorfelde**

<http://www.astro.ku.dk/~erik/xx/BrorfeldeA.pdf>

**Fotografiske mikrometre til meridiankredsene i Brorfelde og Lund**

<http://www.astro.ku.dk/~erik/xx/BrorfeldeB.pdf>

E. Høg 2023, **Ny astrometri revolutionerer hele astronomien**

<http://www.astro.ku.dk/~erik/xx/Alma.pdf>

En artikel bestilt til Universitetets Almanak for 2024 - UDKAST

E. Høg august 2023, **Ny astrometri revolutionerer hele astronomien**

[http://www.astro.ku.dk/~erik/xx/6\\_2024\\_Astrometri.pdf](http://www.astro.ku.dk/~erik/xx/6_2024_Astrometri.pdf)

En artikel bestilt til Københavns Universitets Almanak for 2024, SKRIV- OG REJSE-KALENDER, udgivet i den nuværende form siden 1685

2023, 15. maj, **Astrometriker Erik Høg**

Podcast fra Jens Degetts Science Stories, her med tekst og billeder

<http://www.astro.ku.dk/~erik/xx/InterviewErikHoegTekst.pdf>

Der var 620 lyttere i den første måned.

<http://www.astro.ku.dk/~erik/xx/InterviewErikHogTekst.pdf>

Erik Høg, Svend Laustsen, Jørgen Otzen Petersen 2024, **Julie Vinter Hansen Event**

<https://zenodo.org/records/13744520>

<https://static-curis.ku.dk/portal/files/395140442/EventDK.pdf>

Erik Høg 2024: **Om nøjagtighed og opløsningsevne.**

<http://www.astro.ku.dk/~erik/xx/kv242-EH-Oploesningsevne.pdf>

1p,

Findes i Kvant, august 2024

xxx

**Verdens alder ganske kort**

<http://www.astro.ku.dk/~erik/AlderKort.pdf> 2 pp

Erik Høg

**Verdens alder ifølge de højeste autoriteter**

<http://www.astro.ku.dk/~erik/AgesDKuni22.pdf> 10 pp

Kronik i Universitetsavisen den 26. oktober 2006

Erik Høg 2006.

- I 2021 synes jeg den stadig er brugbar.

**Verdens alder ifølge de højeste autoriteter**

<http://www.astro.ku.dk/~erik/Alder.pdf> 1 p

Med links til versioner af forskellig længde

Erik Høg 2007 - men i 2021 synes jeg det er for uoverskueligt

**Verdens alder ifølge de højeste autoriteter**

på EMU Danmarks Læringsportal, 2018

<https://www.emu.dk/modul/verdens-alder-if%C3%B8lge-de-h%C3%B8jeste-autoriteter>

**Men i 2021 kan linket ikke åbnes**

**Ang. religion:**

Se mail til Emil Bergløv, Politiken 22. og 23. dec.2015 tlf: (40 33 78 97)

Hermed links til det, jeg har skrevet om religion i form af to kronikker.

I 2009: Erik Høg: **Mennesker skabte Gud** 2 pp <http://www.astro.ku.dk/~erik/Religion.pdf>

og i 2010: Erik Høg: **Enhver sin egen tro** 2 pp <http://www.astro.ku.dk/~erik/ReligionSamtaler.pdf>

E. Høg, 2012, **From a visit to the Konfutze temple in Beijing.**

Speaking Chinese with two girls, a third girl took the film and sent it to me. 59 MB, runs 2 minutes. May be downloaded from [http://www.astro.ku.dk/~erik/xx/KinaIMG\\_1008.MOV](http://www.astro.ku.dk/~erik/xx/KinaIMG_1008.MOV)

### **Tiden og rummet efter Einstein**

(Download 0.56 Mb)

<http://www.astro.ku.dk/~erik/xx/tiden og rummet.pdf>

Findes på s.88-95 i Københavns Universitets Almanak, Skriv-og Rejse-Kalender for år 2015.

Et par fejl i nærværende .pdf-fil er rettet i det trykte: På s. 88 er mit portræt anbragt i det røde felt; potenser : fx i boksen på s.89 står der er 10-14 for  $10^{-14}$ ; på s.93 skal der stå *Karl Schwarzschild (1873-1916)*

Erik Høg 2015

Da jeg blev 85 i juni 2017 på instituttets hjemmeside:

[http://www.nbi.ku.dk/navnligt\\_navne/](http://www.nbi.ku.dk/navnligt_navne/)

[http://www.nbi.ku.dk/navnligt\\_navne/2017/85-aarig-dansk-astronom-planlaegger-satellitopsendelse-om-20-aar/](http://www.nbi.ku.dk/navnligt_navne/2017/85-aarig-dansk-astronom-planlaegger-satellitopsendelse-om-20-aar/)

I 2019:

**Syv foredrag ved Erik Høg: A-G:**

<http://www.astro.ku.dk/~erik/xx/Foredrag.pdf>

2024: **Om meridiankredse og huse i Brorfelde.**

<https://www.astro.ku.dk/~erik/xx/BrorfeldeA.pdf>

**Links om Frejlev i 2024:**

**Billeder fra Frejlev, 2015:** <http://www.astro.ku.dk/~erik/xx/Frejlev2-20151027.pdf>

**Arne Heyn, Frejlev, 2010:** <http://www.astro.ku.dk/~erik/xx/FrejlevHeyn.pdf>

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