Thøger Emil Rivera-Thorsen

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Curriculum Vitae

Education

- B.Sc. 2008 Copenhagen University, Denmark. Physics/Astronomy. B.Sc. **Project advisor**: Prof. Johan Fynbo, DARK Cosmology Centre.
- M.Sc. 2011 Copenhagen University, Denmark. Physics/Astronomy. **Thesis advisor**: Prof. Johan Fynbo, DARK Cosmology Centre.
- Lic. Phil. 2015 Stockholm University, Sweden. Astronomy.

 Advisors: Prof. Göran Östlin and Dr. Matthew Hayes.

 The Licentiate is a degree offered in Sweden between Master and Ph.D.
 - Ph.D.* *Planned December 2016 Stockholm University, Sweden. Astronomy. Advisors: Prof. Göran Östlin and Dr. Matthew Hayes.

Talks, seminars etc.

Meetings & Conferences

High-detail characterization of warm ISM in nearby starbursts. *How Galaxies Form Stars*, 20 min., Stockholm, Sweden, August 2016. <u>Session program</u>

Results of HST-COS Spectroscopy of the LARS galaxies. *Lyman Alpha Reference Sample collaboration meeting,* 40 minutes, Paris, France; October 2014.

The Lyman alpha reference sample: Empirical inferences on the Lyman alpha output from high-resolution ultraviolet spectroscopy, European Week of Astronomy and Space Science, 15 min., Geneva, Switzerland; June 2014. Session program

Neutral ISM in young, star-forming galaxies, *Ph.D. days*, 20 min., Uppsala University, Sweden; April 2014

ISM dynamics and geometry in LARS galaxies Lyman- α As An Astrophysical Tool, 15 min., Stockholm, Sweden; September 2013. Workshop schedule

Invited seminars

The impact of ISM kinematics and geometry on Lyman-α escape in the Lyman Alpha Reference Sample, Cosmology seminar, University of Oslo, Norway; September 2015. Program

How Kinematics & Geometry of the ISM Affects Lyman-a Radiative Transfer and Escape, *Seminar*, University of Minnesota, Minneapolis, USA; April 9th 2015.

How Kinematics & Geometry of the ISM Affects Lyman-a Radiative Transfer and Escape, *Physics & Astronomy Seminar*, Macalester College, St. Paul, Minnesota, USA; March 2015. Event calendar

Outreach

Telescope shows, The AlbaNova Telescope, Stockholm, Sweden. *A number of 45-minute guided tour and demo observations with Cassegrain focus eyepiece for the Public; including a general astronomy talk.* 2012-present.

External research project advisor, Secondary School students (12th grade) at Falkonergårdens Gymnasium & HF, Copenhagen, Denmark. Project: Determining Dark Matter mass in Abell 2052 by comparing the baryonic mass of intracluster gas as inferred from Chandra X-ray profiles, to a mass profile obtained from gravitational lensing. November-December 2011

General cosmology talks for *Fysiklærerforeningen*, the Danish Society of secondary school physics teachers, and for the *Science Talenter* (Science Talents) program for 10-15 year old students with a special interest in Science. Typically 1 hour, 4 events through 2009-2010

Physics StackExchange: I am active on the Physics StackExchenge Q&A site. <u>Profile</u>

Teaching experience

- **Secondary school teacher.** Falkonergaardens Gymnasium & HF, Frederiksberg, Denmark. While studying for my Masters degree from August 2009, and until starting my Ph.D. in Stockholm in November 2011, I taught basic and intermediate level physics and basic level mathematics for students in 11th-12th grade (age 15-17) for around 18 hours/week.
- 2012 2014 Teaching assistant. Stockholm University, Sweden.
 20% time on the first 3 years of my Ph.D. Mainly assisting computer lab sessions and grading reports.
- 2012 2014 Computer lab teacher. Stockholm University, Sweden.

 Developing and running the late-stage undergrad level workshop Computer Tools for Astronomers, which ran over 3×3 hours once a year. Introducing LaTeX, the Unix command line, and a number of useful Python-based tools including NumPy, SciPy, Asdtrpy, Matplotlib, and LMFit. Website

Summer/ winter schools

- 2012 Nordic Millimeter and Optical/NIR Astronomy Summer School 2012: Observational cosmology and the formation and evolution of galaxies. Website
- 2014 Penn State Summer School of Astrostatistics. Website
- 2015 North-European Radio Astronomy School. Website
- 2016 The 46th Saas-Fee Course: Lyman-alpha As An Astrophysical And Cosmological Tool. Website

Observing/reduction experience

Nordic Optical Telescope (2.5m.), La Palma, Canary Islands.

Two runs of each around 8 nights, the first in February 2012, the second in February 2014. Multiband imaging with MOSCA, spectroscopy with FIES.

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Hubble Space Telescope - Cosmic Origins Spectrograph

Analysis of HST-COS data, including vignetting corrections.

VLT - X-Shooter

Reduction and analysis only. Reduction of several datasets, beginning when the esorex based pipeline was still in Beta (summer 2010).

AlbaNova Telescope (1m.), Stockholm, Sweden.

The AlbaNova Telescope is a 1m science-grade telescope mounted on top of the AlbaNova building in Stockholm. Various demonstrations to the general public and leisure observations with eyepiece.

Scientific software

Extensive

Python-based science tools including NumPy, SciPy, AstroPy, Pandas, Matplotlib, IPython, Traits(-UI), Chaco, and Lmfit; X-Shooter pipeline (Esorex-based), VPfit, vpguess.

Good IDL, Python-Statsmodels, Source Extractor, Gnuplot, SAO ds9, CXC Sherpa.

Basic R, Casa, GILDAS/CLASS, Healpix/Healpy, IRAF, Fortran, Julia.

Other More than a decade of experience using and managing GNU/Linux and Mac OSX systems. I know my way around Windows XP/7/8+ but am no power user. Some experience with Bash/sh scripting. Git/GitHub for version control.