Johannes Zabl | CV

johannes.zabl@smu.ca • www.observingtheuniverse.com

Employment after PhD

Saint Mary's University, Halifax, Canada
Postdoc w. Prof. Marcin Sawicki *Jan. 2021 –*
Design and implementation of data reduction software for GIRMOS

Centre de Recherche Astrophysique de Lyon (CRAL), Lyon, France
Postdoc w. Dr. N. F. Bouché *Sep. 2018 – Dec. 2020*
Continuation of 'MEGAFLOW' postdoc after Dr. N. Bouché moved to Lyon.

IRAP, Toulouse
Postdoc w. Dr. N. F. Bouché *Sep. 2016 – Aug. 2018*
Working on MUSE GTO survey 'MEGAFLOW'.

Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen
Postdoc 1.5 month w. Prof. J.P.U. Fynbo + 10.5 months w. Prof. S. Toft *Jul. 2015 – Jul. 2016*
Reduction and analysis of a VLT/XShooter sample of high-z lensed quiescent galaxies

Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen
Research Assistant (1.5 month) w. Prof. J.P.U. Fynbo *Jun. 2015 – Jul. 2015*
Between PhD submission and defense.

Education

Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen
PhD (Astronomy), Issue date: July 10th, 2015 *2011–2015*

Arizona State University
6 months research stay working with Prof. S. Malhotra & Prof. J. Rhoads *2013–2014*

University of Munich (Ludwig-Maximilians-Universität)
Diplom (Physics), with distinction *2005–2011*

PhD thesis

Title: *Emission line imaging and spectroscopy of distant galaxies*

Supervisor: Prof. J.P.U. Fynbo

Opponents: Prof. S. Vergani, Prof. E. Zackrisson, Prof. S. Hansen

Date of defense: July 2nd, 2015 www.observingtheuniverse.com/thesis.pdf

Diplom thesis (equiv. Master's thesis)

Title: *The VISTA Narrow-Band NB118 Filter: The Impact of Throughput Variations on the Observation of Emission line Candidates*

Supervisors: W. Freudling, P. Møller (project at ESO, Garching; formal supervisor: Prof. M. Kissler-Patig)

Observational Experience

XShooter/VLT: 2 nights
MUSE/VLT: 9.5 nights
NEWFIRM/KPNO 4m (Mayall): 5 nights
ALFOSC/NOT: 4 nights (+3 nights as TA)

Observation Programs (allocated)

ALMA:
- **as PI:** Cycle 4, 4.3hrs (Used in Man et al. in prep)
- as Co-I: Cycle 5, 6, 7 (PIs: Man, Tanaka, Whitaker)

ESO VLT/XShooter:
- **as PI**: P89 - 0.5 nights (see Milvang-Jensen et al. 2013); P104 - 20.2h
- as co-I: P93, P96, P97, P100, P102 (PIs: Toft, Man, Stockmann, Fynbo, Valentino)

ESO VLT/MUSE: as co-I: P100, P101, P102, P103, P104, P105 (PIs: Bouché, Man, Lilly)
ESO VLT/UVES: as co-I: P108 (PI: Bouché)
ESO VLT/Hawk-I: as co-I: P104 (PI: Valentino)
HST/WFC3: as co-I: Cycle 24, Cycle 25, Cycle 26 PIs (Conselice, Ebeling, Akhshik)
Keck/MOSFIRE: as co-I: S17B, S18B (PI: Tanaka)
NOEMA: as co-I: WS18, SS19 (PI: Contini/Bouché)
VLA: as co-I: S17A, S18A (PI: Man)
ESO VISTA/VIRCAM: P99-P107 (PI: Dunlop)
Gemini/GNIRS: S2015B (PI: Jørgensen)
CFHT: 2021B (PI: Sawicki)

Talks/Posters

KooGiG-Junior **China (via Zoom)**
Mapping the flows of the cool CGM at $z \sim 1$ in absorption and emission, Talk *2021*

A&P Colloquium series, Saint Mary's University, Halifax **Canada (via Zoom)**
Flows of gas around $z \approx 1$ galaxies, Colloquium *2021*

ARCTOMO group meeting [lead by S. Lopez and N. Tejos] **Chile (via Zoom)**
Mapping the Cool CGM at $z \approx 1$, Informal Talk *2020*

BlueMUSE Science workshop **France (via Zoom)**
MEGAFLOW survey overview , Talk *2020*

Astronomy Seminar Series, Mitchell Institute, Texas A&M university **USA (via Zoom)**
Mapping the Cool CGM at $z \approx 1$, Talk *2020*

European Astronomical Society Annual Meeting **Zoom**
Fuelling galaxies with angular momentum, Talk *2020*

European Astronomical Society Annual Meeting **Zoom**
Connecting direct gas flow measurements with galaxy properties, Talk *2020*

The Cosmic Baryon Cycle (Seventh Annual GMT Community Science Meeting) **Carlsbad, USA**
Measuring Flows of Gas around Typical Distant Galaxies: MEGAFLOW, Talk *2019*

Intergalactic Interconnections **Marseille, France**
Measuring gas accretion on halo scales - A MEGAFLOW accretion study, Talk *2018*

The Cosmic Dawn Center **Copenhagen, Denmark**
Measuring gas accretion on halo scales with MEGAFLOW, Talk *2018*

MUSE collaboration meetings (twice per year) **various places**
Various MEGAFLOW talks, Talk *2016-2020*

CRAL Institute seminar **Lyon, France**
How to measure gas accretion on halo scales - A MEGAFLOW accretion study, Talk *2017*

The galaxy ecosystem. Flow of baryons through galaxies **Conference**
MEGAFLOW: A study of gas accretion around $z \sim 1$ star-forming gal. . . . , Poster *Poster* *2016*

Special Seminar (SESE/ASU) **Tempe, USA**
Lyman-alpha halos around galaxies, Talk *2014*

The Formation and Growth of Galaxies in the Young Universe **Obergurgl, Austria**
Deep rest-frame far-UV spectroscopy of the giant LAE 'Himiko' . . . , Poster *2014*

The Near-Field Deep-Field Connection **Irvine, USA**
Deep NIR spectroscopy of the giant Lyman-α blob 'Himiko' . . . , Poster *2014*

Danish National Astronomy Meeting **Sandberg, Denmark**
XSHOOTER follow-up spectroscopy for VISTA NB118 sel. [OII] emit. . . . *Poster* *2013*

Science from Next Generation Imaging and Spectroscopic Surv. **Garching, Germany**
XSHOOTER follow-up spectroscopy for VISTA NB118 sel. [OII] emit. . . . *Poster* *2012*

Computer skills

Programming languages: python (advanced), IDL (proficient), C++ (basic); (+git)

Astronomical software: IRAF/pyRAF (proficient), SExtractor (proficient), Swarp (proficient), stilts (proficient), astropy (proficient), Scamp (basic), ESO reduction pipelines (XShooter, MUSE: advanced), pPXF (proficient), DrizzlePac (basic), galfit (proficient), Camel (proficient), GalPaK^{3D} (advanced)
+ *own codes:* coniecto (SED fitting: see Zabl+ 2016), cgmpy (CGM kinematic modelling; soon public)

Operating systems: OSX and Linux (proficient; including shell scripts)

Web applications: html (proficient), php (basic), mysql (proficient), java script (basic)

advanced: above average working knowledge; *proficient*: good working knowledge; *basic*: Not fully proficient, either because I am out of practice, or because I only started regularly using the software.

Languages

German: Mother tongue

English: Proficient both in written and spoken language

Danish + French: Very elementary skills

Community duties

Referee for scientific journals: MNRAS(2), ApJ(1), PASJ(1)

Organizer of institute meetings: co-organizer cake talks DARK (part of 2013), MUSE group meeting at IRAP (2016-2018), Weekly journal club at CRAL (2018-now)

SOC member: CGM symposium as part of EAS Annual Meeting 2020 (formerly known as EWASS)

Teaching Assistant

Nordic Optical Telescope School	Prof: J.P.U. Fynbo	Copenhagen, 2013
Astronomical Data Processing	Prof: M. Vestergaard, L. Christensen	Copenhagen, 2013

MatF2 (Complex Analysis)	Prof: J. Mathiesen	Copenhagen, 2012
Mathematical Meth. for Theoret. Physics	Prof: T. Franosch	Munich, 2007

Research interests

- **galaxies: evolution** - I am interested in understanding high-redshift galaxy evolution in a 'holistic' way.
- **galaxies: haloes** - I am interested in constraining the distribution and kinematics of the CGM gas with various methods. This includes observations in emission and absorption.
- **galaxies: dynamics** - I am interested in the dynamics of high-z galaxies in general, but in particular how the galaxies' dynamics are coupled to the dynamics of the CGM.
- **galaxies: abundances** - I am interested in constraining the impact of flows of gas between ISM and CGM on the abundances both in ISM and CGM.
- **galaxies: high redshift** - I am particularly interested in studying galaxies at moderate to high redshifts ($z > 0.5$ and all the way back to the epoch of reionization)
- **quasars: absorption line** - I use quasars as a tool to study the CGM around intervening galaxies.
- **methods: observational** - I am interested in optimizing existing and developing new techniques.

Collaborations

I am currently part of these collaborations/teams:

- GIRMOS instrument project
- CANUCS (The CAnadian NIRISS Unbiased Cluster Survey) - `http://canucs-jwst.com`
- MEGAFLOW (MusE GAs Flow and Wind)
- REQUIEM - `https://requiem-galaxies.com/`

Main references

Dr. Nicolas F. Bouché
Centre de Recherche Astrophysique de Lyon (CRAL)
Univ Lyon, Univ Lyon1, Ens de Lyon, CNRS
9 avenue Charles André
69230 Saint-Genis-Laval, France
`nicolas.bouche@univ-lyon1.fr`
+33 481184913

Prof. Johan P. U. Fynbo
The Cosmic Dawn Center, Niels Bohr Institute
University of Copenhagen
Vibenshuset, Lyngbyvej 2
2100 Copenhagen Ø, Denmark
`jfynbo@nbi.ku.dk`
+45 35325983

Prof. Sune Toft
The Cosmic Dawn Center, Niels Bohr Institute
University of Copenhagen
Vibenshuset, Lyngbyvej 2
2100 Copenhagen Ø, Denmark
`sune@nbi.ku.dk`
+45 35325908