# Investigating the Epoch of Galaxy Formation with Artificial Intelligence

*by*

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# Abstract

“ 5. Preliminary Pages 5.1 Each copy of the thesis must contain the following required pages: .1 a title page; **.2 a summary of no more than 300 words;** .3 a list of contents, which includes the page number for each chapter and sub-division listed; .4 acknowledgments, where this is an expectation of your sponsor ”
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# Publications

## Preface

Keep in mind the wise words of Louise Winter (PGR Admin School of PHYSX (as of 2022))
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### First Author Publications

authors, et al. year; *Title*, Submitted to MNRAS

### Co-Author Publications

, In Prep

# Contents

*"A dedication quote/sentence"*

# Acknowledgements

*"A quote"*

By whom *From what source*

## Funding Bodies and Affiliations

Insert thanks to funding bodies, and affiliations (e.g. partner company, CDT, governments, University funders, grants/awards, etc. ...) There are no strict rules on logos here — use at your discretion.

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Insert personal thanks, e.g. supervisors, friends, family, colleagues. Keep it proffessional.
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Chapter 1

# Introduction

## 1.1 A title

Chapter 2

# Herschel-ATLAS Data Release III

## 2.1 The Herschel-ATLAS

The *Herschel* Astrophysical Terahertz Large Area Survey (H-ATLAS; Eales et al. 2010) was the largest open-time sub-mm survey carried out with *Herschel*. The survey was observed across five photometric bands using two instruments on board *Herschel*: the Photodetector Array Camera (PACS, Poglitsch et al. 2010) at 100 and 160 µm, and the Spectral and Photometric Imaging Receiver (SPIRE, Griffin et al. 2010) at 250, 350 and 500 µm.

The SPIRE bands were able to detect the cold dust missed by previous observatories, while at a better angular resolution. Notably, compared to ground based telescopes at wavelengths >850 µmwhere low-z galaxies are intrinsically faint, the SPIRE bands span the SED peak of typical galaxies in the local Universe.

The main scientific goal of the H-ATLAS was to provide measurements of the dust masses and dust obscured star formation for tens of thousands of nearby galaxies (to create and FIR/sub-mm analogue to the SDSS). The original goal was to provide a shallow survey over a large area of sky, but the exceptional sensitivity of *Herschel* and the negative k-correction at sub-mm wavelengths (References) means a significant fraction of sources lie at high redshifts (References).

The complete survey covers $\sim 660\,\mathrm{deg}^2$, split into three regions located to avoid emission from Galactic dust and to utilize complimentary spectroscopic surveys including the Sloan Digital Sky Survey (SDSS, York et al. 2000), the 2df Galaxy Redshift Survey (2dfGRS, Colless et al. 2001) and the Galaxy and Mass Assembly (GAMA, Driver et al. 2009). The North Galactic Pole (NGP) region covers $\sim 180\,\mathrm{deg}^2$ of the northern sky,

Chapter 3

# Conclusion

*"A quote"*

By whom *From what source*

Appendix A

# An Appendix

## A.1 An Appendix

# Bibliography

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