

이학박사 학위논문

On the Physical Behavior of
Fine Particles on Airless Bodies

대기 없는 천체 위에서 고운 입자의
물리적 행동에 관하여

2023년 5월

서울대학교 대학원

물리·천문학부

한 글 명

On the Physical Behavior of Fine Particles on Airless Bodies

지도교수 지 도 자

이 논문을 이학박사 학위논문으로 제출함

2023년 5월

서울대학교 대학원

물리·천문학부

한 글 명

한글명의 박사 학위논문을 인준함

2023년 5월

위 원 장 _____ (인)

부위원장 _____ (인)

위 원 _____ (인)

위 원 _____ (인)

위 원 _____ (인)

Contents

Abstract	iii
List of Figures	vi
List of Tables	vii
1 Introduction	1
2 Thermophysical Modeling	2
3 Polarimetry	3
4 Summary and Future Works	4
4.1 Summary	4
4.2 Future Work	4
Bibliography	6
Abstract	3

List of Figures

List of Tables

Chapter 1

Introduction

This is the introduction

Chapter 2

Thermophysical Modeling

This chapter will describe the thermophysical modeling (TPM)

Chapter 3

Polarimetry

This chapter will describe the polarimetric observation, experiments, and applications. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text. A test long text.

Chapter 4

Summary and Future Works

4.1 Summary

Summary of this dissertaiton.

4.2 Future Work

Some possible future works:

This is how you put references:

Lyot (1929); Geake et al. (1970); Geake and Dollfus (1986)

Inside the parentheses: (Bach et al., 2022)

And with prefix/suffix: (prefix! Astropy Collaboration et al., 2018, suffix!)

Bibliography

Astropy Collaboration, Price-Whelan, A. M., Sipőcz, B. M., Günther, H. M., Lim, P. L., Crawford, S. M., Conseil, S., Shupe, D. L., Craig, M. W., Dencheva, N., Ginsburg, A., VanderPlas, J. T., Bradley, L. D., Pérez-Suárez, D., de Val-Borro, M., Aldcroft, T. L., Cruz, K. L., Robitaille, T. P., Tollerud, E. J., Ardelean, C., Babej, T., Bach, Y. P., Bachetti, M., Bakanov, A. V., Bamford, S. P., Barentsen, G., Barmby, P., Baumbach, A., Berry, K. L., Biscani, F., Boquien, M., Bostroem, K. A., Bouma, L. G., Brammer, G. B., Bray, E. M., Breytenbach, H., Buddelmeijer, H., Burke, D. J., Calderone, G., Cano Rodríguez, J. L., Cara, M., Cardoso, J. V. M., Cheedella, S., Copin, Y., Corrales, L., Crichton, D., D’Avella, D., Deil, C., Depagne, É., Dietrich, J. P., Donath, A., Droettboom, M., Earl, N., Erben, T., Fabbro, S., Ferreira, L. A., Finethy, T., Fox, R. T., Garrison, L. H., Gibbons, S. L. J., Goldstein, D. A., Gommers, R., Greco, J. P., Greenfield, P., Groener, A. M., Grollier, F., Hagen, A., Hirst, P., Homeier, D., Horton, A. J., Hosseinzadeh, G., Hu, L., Hunkeler, J. S., Ivezić, Ž., Jain, A., Jenness, T., Kanarek, G., Kendrew, S., Kern, N. S., Kerzendorf, W. E., Khvalko, A., King, J., Kirkby, D., Kulkarni, A. M., Kumar, A., Lee, A., Lenz, D., Littlefair, S. P., Ma, Z., Macleod, D. M., Mastropietro, M., McCully, C., Montagnac, S., Morris, B. M., Mueller, M., Mumford, S. J., Muna, D., Murphy, N. A., Nelson, S., Nguyen, G. H., Ninan, J. P., Nöthe, M., Ogaz, S., Oh, S., Parejko, J. K., Parley, N., Pascual, S., Patil, R., Patil, A. A., Plunkett, A. L., Prochaska, J. X., Rastogi, T., Reddy Janga, V., Sabater, J., Sakurikar, P., Seifert, M., Sherbert, L. E., Sherwood-Taylor, H., Shih, A. Y., Sick, J., Silbiger, M. T., Singanamalla, S., Singer, L. P., Sladen, P. H., Sooley, K. A., Sornarajah, S., Streicher, O., Teuben, P., Thomas, S. W., Tremblay, G. R., Turner, J. E. H., Terrón, V., van Kerkwijk, M. H., de la Vega, A., Watkins, L. L., Weaver, B. A., Whitmore, J. B., Woillez, J., Zabalza, V. and Astropy Contributors (2018), ‘The Astropy Project: Building an Open-science Project and Status of the v2.0 Core Package’, *Astron. J.* **156**(3), 123.

Bach, Y. P., Ishiguro, M., Takahashi, J. and Geem, J. (2022), ‘Data Reduction Process and Pipeline for the NIC Polarimetry Mode in Python, NICpolpy’, *Stars and Galaxies* **5**, 1.

Geake, J. E. and Dollfus, A. (1986), ‘Planetary surface texture and albedo from parameter plots of optical polarization data’, *Mon. Not. R. Astron. Soc.* **218**, 75–91.

Geake, J. E., Dollfus, A., Garlick, G. F. J., Lamb, W., Walker, G., Steigmann, G. A. and Titulaer, C. (1970), ‘Luminescence, electron paramagnetic resonance and optical properties

of lunar material from Apollo 11', *Geochim. Cosmochim. Acta Suppl.* **1**, 2127.

Lyot, B. (1929), Recherches sur la polarisation de la lumière des planètes et de quelques substances terrestres
Recherches sur la polarisation de la lumière des planètes et de quelques substances terrestres
Research on polarization of light from planets and some terrestrial substances;, PhD thesis, University of Paris (to 1969), France.

초록

한국어 초록이 반드시 포함되어야 함 (For the dissertation written in non-Korean language, Korean abstract MUST be included)

주요어: 소행성, 열적 모델링, 표토, 복사압, 편광—광학, 편광—적외선

학번: 2000-12345

Acknowledgement

Acknowledgements go here