



**University of
Zurich^{UZH}**

Title

Master Thesis in Physics

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Abstract

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Acknowledgements

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1 Introduction

1.1 Motivation

xxx

1.2 Subsection title

xxx

1.2.1 Subsubsection title

xxx

2 Section title

In section 2...

2.1 Subsection title

2.1.1 Subsubsection title

3 Examples of scientific writing

In section 3, examples of scientific writing are provided.

3.1 Typefaces for symbols in scientific manuscripts

The following rules are taken from International Organization for Standardization (ISO) International Standard ISO 80000-1:2022 (former ISO 31). Technical publications should be typed or typeset in either italic or roman type, as follows:

- symbols for physical quantities and variables, universal constants and running indices – italic;
- symbols for units – roman;
- symbols for descriptive terms – roman.

The following sections give examples of the proper typefaces for these categories.

3.1.1 Universal constants - italic

h the Planck constant
 F the Faraday constant

3.1.2 Units – roman

m (meter) g (gramm)
 cm (centimeter) μg (microgramm)

3.1.3 Quantities and variables - italic

Symbols for quantities are italic, as are symbols for functions in general, for example, $f(x)$:

$t = 1 \text{ s}$ (t time, s second) $T = 297 \text{ K}$ (T temperature, K Kelvin)
 $r = 12 \text{ cm}$ (r radius, cm centimeter) $\lambda = 633 \text{ nm}$ (λ wavelength, nm nanometer)

3.1.4 Subscripts

The following principles for the printing of subscripts apply.

- A subscript that represents a physical quantity or a mathematical variable, such as a running number, is printed in italic type.
- Other subscripts, such as those representing words or fixed numbers, are printed in roman type.

Italic subscripts		Roman subscripts	
C_p	(p : pressure)	C_g	(g: gas)
c_i	(i : running number)	c_3	(3: third)
$\sum_n a_n \omega_n$	(n : running number)	g_n	(n: normal)
F_x	(x : x - component)	μ_r	(r: relative)
g_{ik}	(i, k : running numbers)	S_m	(m: molar)
I_λ	(λ : wavelength)	N_A	(A: Avogadro)

3.1.5 Chemical elements – roman

Ar (argon) B (boron) C (carbon)

3.1.6 Vectors, tensors and matrices – boldface italic

Symbols for vectors are boldface italic, symbols for tensors are sans-serif bold italic, and symbols for matrices are boldface italic:

$$\mathbf{A} \cdot \mathbf{B} = \mathbf{C} \quad (\text{vectors}) \qquad \mathbf{T} \quad (\text{tensors}) \qquad \mathbf{A} = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \quad (\text{matrices})$$

3.1.7 Mathematical constants, functions and operators

Symbols representing mathematical constants that never change (for example, π) and symbols representing explicitly defined functions or well defined operators (for example, $\Gamma(x)$ or div) - roman:

$\exp x$ $\sin x$ $\ln x$ dx/dt

$$F(q_x, q_y) = \iint f(x, y) \exp[-i(q_x x + q_y y)] dx dy.$$

3.2 Examples of numbered equations

Equation (1) shows that ...

$$M_Z = (57.9 \pm 7.03) M_{\oplus} \left(\frac{M}{M_J} \right)^{(0.61 \pm 0.08)}, \quad (1)$$

$$E = mc^2. \quad (2)$$

3.3 Example of table

n	0	1	1.5	2	2.5
τ_{ff}	$\propto M^0$	$\propto M^{1/4}$	$\propto M^{1/2}$	$\propto M$	$\propto M^{5/2}$
τ_{expl}	$\propto M^0$	$\propto M^{1/4}$	$\propto M^{1/2}$	$\propto M$	$\propto M^{5/2}$
τ_{Alfven}	$\propto M^{1/3}$	$\propto M^{1/4}$	$\propto M^{1/6}$	$\propto M^0$	$\propto M^{-1/2}$
τ_{shear}	$\propto M^{-1/3}$	$\propto M^0$	$\propto M^{1/3}$	$\propto M$	$\propto M^3$

Table 1: Relation of the timescales with planetary mass for different density power-law indexes.

3.4 Examples of figures

3.4.1 Scalebars and intensity bars

Figure 1 illustrates how every image of the sample should have a scalebar and an intensity bar.

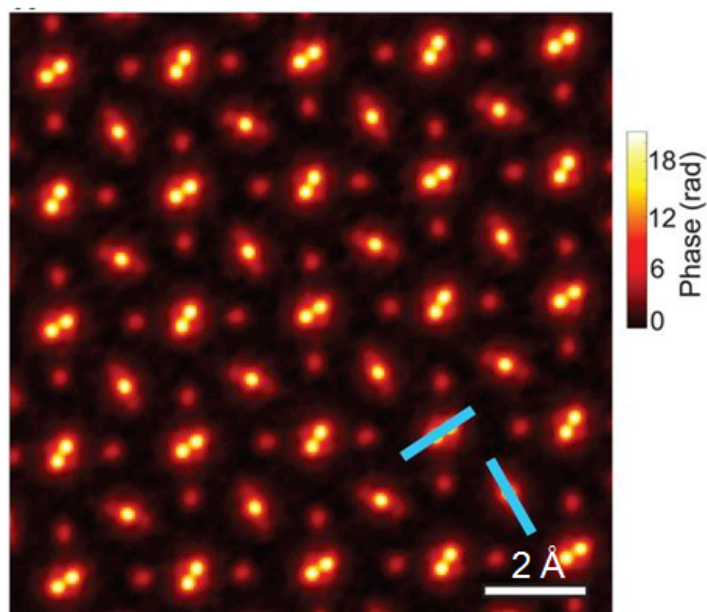


Figure 1: Multislice electron ptychographic reconstruction of PrScO₃. The figure is reprinted from Chen et al. [1].

3.4.2 Figure with multiple panels

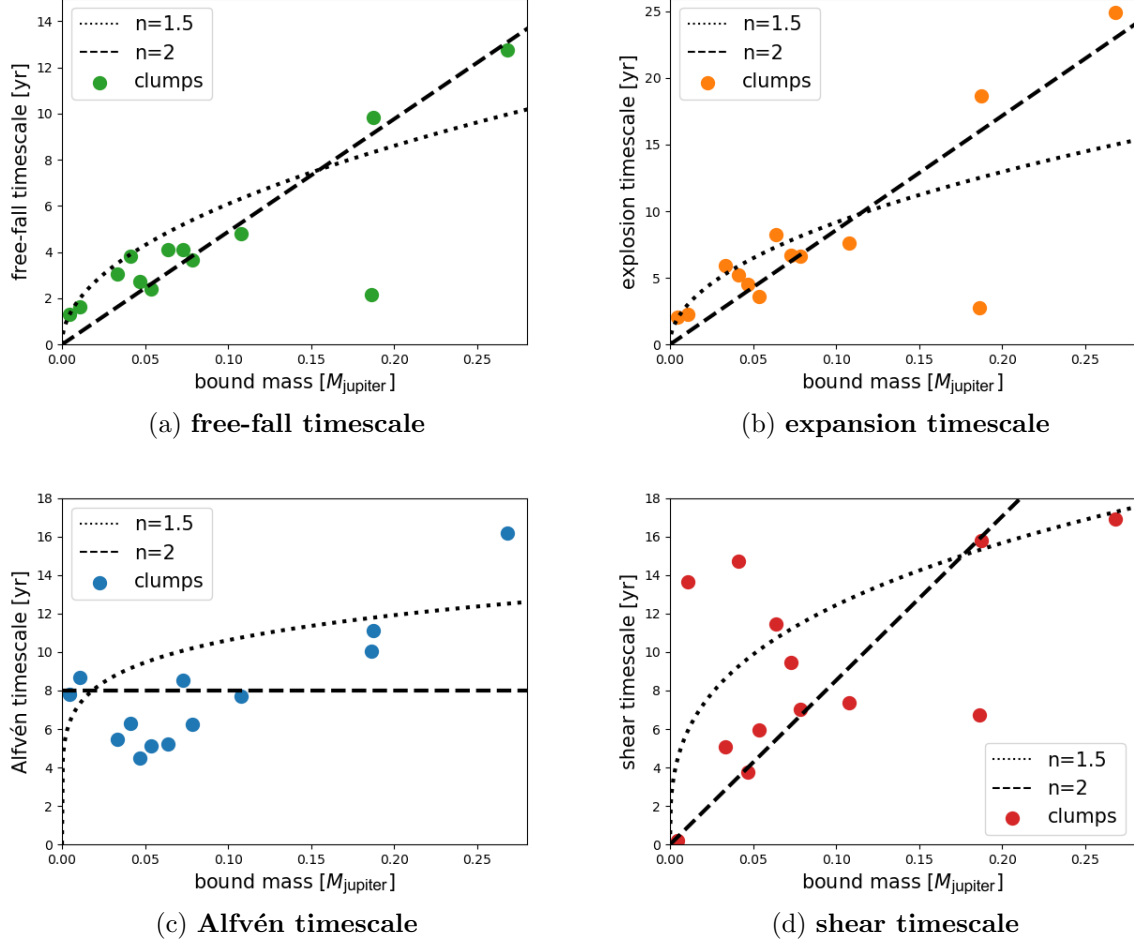


Figure 2: Relation of the 13 MHD clumps bound mass with (a) the free-fall timescale, (b) the expansion timescale, (c) the Alfvén timescale, and (d) the shear timescale. The black dashed and dotted lines correspond to the predicted relation for power-law index $n = 1.5$ and $n = 2$.

4 Section title

In section 4...

4.1 Subsection title

4.1.1 Subsubsection title

Footnote¹

¹XXX

5 Conclusions & Outlook

Conclusions

Outlook

6 Appendix

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References

- [1] Z. Chen, Y. Jiang, Y.-T. Shao, M. E. Holtz, M. Odstrei, M. Guizar-Sicairos, I. Hanke, S. Ganschow, D. G. Schlom, and D. A. Muller, “Electron ptychography achieves atomic-resolution limits set by lattice vibrations,” *Science* **372**, 826 – 831 (2021).