

**Acknowledgments
in Scientific
Publications and
Presentations** *and Posters*

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1

First, get it spelled correctly...

**There is no *e* following the *g* in the
U.S. English spelling of *acknowledgment***

**(Don't believe me?—look at the acknowledgment
page of any book published by a U.S. publisher)**

**British English spells it with the “e,” but we colonials
have our own rules**

**Some wimpy dictionaries may accord “acknowledgement”
alternative status, but we have higher standards in physics**

2

The *acknowledgment* is a formal printed statement that recognizes individuals and institutions that contributed to the work being reported

Contributions to the research should be acknowledged

Non-research contributions are generally not appropriate for acknowledgment in a scientific paper but may be in a thesis

3

Acknowledge research contributions by people other than the authors

Persons who gave scientific guidance, participated in discussions, or shared unpublished results

Persons who provided samples or equipment

Assistants who helped do the work

Technicians at user facilities or labs

Make it a simple statement of thanks, not a testimonial or dedication

4

Do not acknowledge non-science contributors

**Persons who helped prepare the manuscript
(e.g., typists, graphic artists)**

**Persons who provided encouragement or
moral support (e.g., Mom)**

**Persons who provided non-technical services
(e.g., grant coordinators, secretaries,
purchasing agents)**

**These individuals might be acknowledged in a
thesis, but not in a journal article, presentation,
or poster**

5

Acknowledge by name only

**Do not use titles, honorifics, positions, or
awards**

Paul G. Kwiat

NOT

**Professor Paul G. Kwiat,
Bardeen Chair in Physics**

Anthony J. Leggett

NOT

Sir Dr. A.J. Leggett, Nobel Laureate

6

Always acknowledge financial support of the research—always

Give the name of the funding agency and grant or contract number

Do not mention a title that came with the funds

CME acknowledges support from the Lorella Jones Summer Research Fund

NOT

CME was a Lorella Jones Summer Research Fellow

7

Funding agency acknowledgments

An acknowledgment of federal support must appear in publications (including Internet sites) of any material, whether copyrighted or not, based on or developed under US government-supported projects

“This material is based upon work supported by the <name of agency> under Grant No. ____.”

In the case of multiple grants, all funding agencies that supported the work must be acknowledged

8

NSF support also must be orally acknowledged during all news media interviews, including popular media such as radio, television and news magazines

***Except for* articles or papers published in scientific, technical or professional journals, the following disclaimer must also be included for NSF-supported work:**

“Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.”

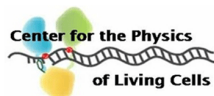
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What about logos?

Federal funding agencies may allow you to use their logos, but obtain a high-resolution image and follow their guidelines

The University has explicit rules about the use of the I-mark

Companies are aggressive about protecting their brands and trademarks; just because you can grab a logo off a website does *not* mean you can use it with impunity



10

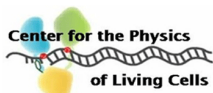
What about logos?

Rules for using the NSF logo:

<http://www.nsf.gov/policies/logos.jsp>

Rules for using the University of Illinois at Urbana-Champaign logo:

(<http://identitystandards.illinois.edu/graphicstandardsmanual/logoguidelines.html>)



11

Where to put the acknowledgments?

Temperature-Dependent Fliprate of Artificial Spin Ice
Isaac Carrasquillo, Yuyang Lao, and Peter Schiffer
Department of Physics, University of Illinois at Urbana-Champaign

Goal
Find a model for the flipping behavior of artificial spin ice at varying temperature

Artificial Spin Ice

- Manually fabricated nanometer size, single domain island arrays used to analyze magnetic frustration
- Dimensions 170 nm by 470 nm with a thickness of 8 nm
- Composed of permalloy, an 20% iron and 80% nickel alloy

Tetris Lattice

- Similar to square lattice with 3/8 of the islands removed
- Used to study the one-dimensional Ising Model of the frustrated islands
- Islands behave differently based on how many nearest neighbors exist

Photoemission Electron Microscopy

- Record electrons emitted from a sample in response to the absorption of incoming radiation
- Extract the relative direction of the magnetization of each island with respect to the incoming X-ray
- The islands appear black or white depending on the directions of island's magnetization
- Imaged 120 frames of in the temperature range from 300 K to 360 K

Active Island Model

Monte Carlo Simulation

- Active islands flip during exposure time, in each frame
- Address an average over time with an average over noise, experimental data
- The time t_i (in 1000s), represents the behavior of one island
- Random files, JPDF, distributed and tested using Random samplings

Mean Relaxation Theory

- Describe the mean transition time between energy states for various temperatures
- Depends on energy barrier ΔE between two spin states and attempt period τ_0
- Describes a free double moment of a superparamagnetic material

$$\frac{1}{f(T)} = \tau(T) = \tau_0 (e^{\frac{\Delta E}{k_B T}})$$

Fits to Fliprate Model

- The horizontal staircase is the first to become active, followed by vertical, and backbone
- Islands with more nearest neighbors flipped at higher T
- Energy barriers were between 0.7 eV and 0.95 eV
- Attempt periods were between 0.3-0.97 ps and 1.2-1.07 ps
- Energy barriers were higher for islands that began flipping at higher T

Future Work

- Applying this same analysis to pentagonal and Shafran lattices
- Use fewer discrete temperatures to get more accurate data
- Improving the model to include external influences

Acknowledgments

I would like to thank Yuyang Lao, Ian Gilbert, and Peter Schiffer, at the Lawrence Berkeley National Lab and the National Science Foundation for their support of this research. I would also like to thank the National Science Foundation for their support of this research. I would also like to thank the National Science Foundation for their support of this research.

Questions and comments: cec@uiuc.edu

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IC would like to thank Yuyang Lao, Ian Gilbert, and Peter Schiffer. IC thanks Andreas Scholl and the Lawrence Berkeley National Lab Advanced Light Source (ALS) for use of the PEEM---XMCD systems. IC thanks Liam O'Brien, Justin D. Watts, Michael Manno, and Chris Leighton from University of Minnesota for creating the samples. This material is based upon work supported by the National Science Foundation under Grant No. DMR---1341793. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

12

An alternative placement

Machine Learning and Cosmological Simulations
 Harshil M. Kamdar, Matthew J. Turk, Robert J. Brunner
 University of Illinois at Urbana-Champaign

Introduction & Motivations

- What is the influence of dark matter (DM) structure on galaxy evolution?
- Can we track this relationship by using machine learning (ML)?
- Current galaxy formation techniques are expensive to run, however, dark matter only simulations are not.
- ML offers a solid framework to mimic hydrodynamical simulations for these reasons: computational efficiency, relative simplicity, and ability to learn highly complex relationships.


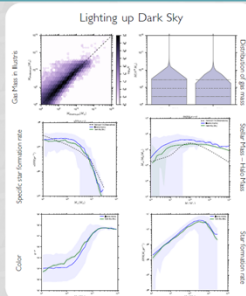


Figure 1: Dark matter density field showing the relationship between the dark matter density field and the galaxy density field.

Lighting up Dark Sky



Conclusions

- The ML simulated galaxies in the Dark Sky simulation are numerically, physically, and statistically robust.
- However, the ML simulated galaxies abide by certain fundamental observational constraints, further solidifying confidence in our approach.
- ML techniques approximately mimic a full-blown hydrodynamical simulation inside a DM only simulation, **only six orders of magnitude faster**.

Future Work

- Creating full mock galaxy catalogs using ML, with different cosmological parameters to compare with observations in the matter of minutes.
- Comparing different hydrodynamical simulation codes to see how different fine-tuned parameters and resolution techniques affect structure formation in a hydrodynamical simulation.

References

- Kamdar H, Turk M, Brunner R, 2015a, MNRAS (Accepted)
- Kamdar H, Turk M, Brunner R, 2015b, MNRAS (Submitted)
- Kamdar H, Turk M, Brunner R, 2015c, MNRAS (in prep)

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13

To Recap:

- Get it spelled correctly 
- Acknowledge people who contributed to the scientific work but are not co-authors
- Keep it a simple expression of thanks, not a testimonial
- Acknowledge the use of special facilities
- ALWAYS** acknowledge financial support; conform to funder guidelines for language
- Check with the funder about use of logos



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14