



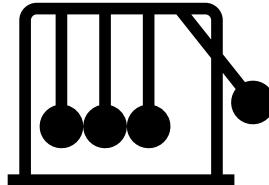
# Week 1: Scratching the Surface

SESSION 1: GRAD SCHOOL 101 + LaTeX

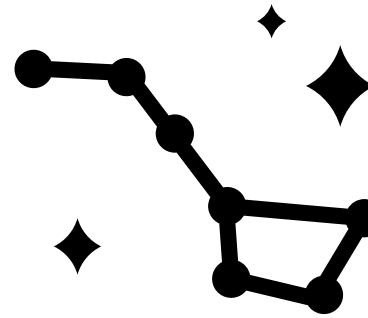
STARFISH SCHOOL 2021

**Who are we and why are we  
doing this?**

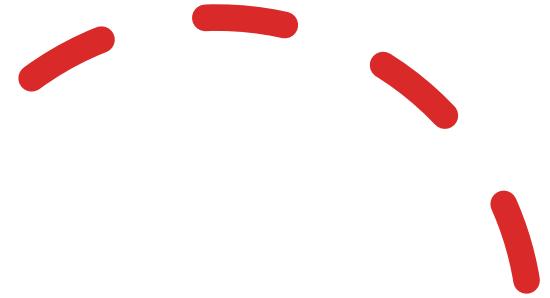
# Astronomy is more than just the Physics



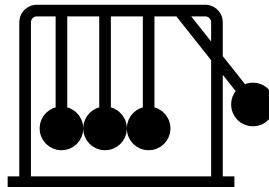
Physics



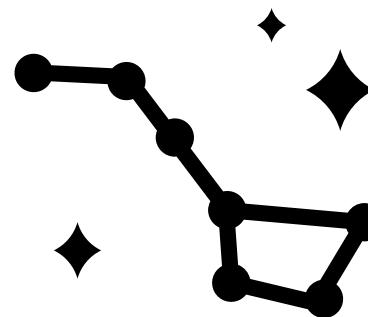
Astronomy



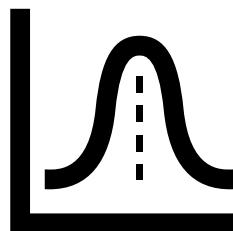
# Astronomy is more than just the Physics



Physics



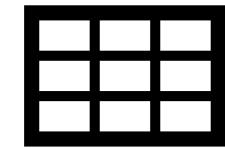
Astronomy



Statistics



Computing



Data Analysis



# Expectations

This bootcamp is about helping you become the best Astro grad student/researcher you can be!

This is not about grading or becoming expert in any of these concepts. It's about knowing that these tools and techniques exist, letting you get your hands dirty with them, and knowing where to search for help.

Our expectations for you are:

- Try things
- Ask questions to us and your peers throughout the bootcamp
- Do your best to complete the exercises as a group
- Help each other



# Expectations

This bootcamp is about helping the student/researcher you come to be.

This is not about grading concepts. It's about knowing how to work with them, and letting you get your hands dirty with them, and knowing where to search for help.

Our expectations for you are:

- Try things
- Ask questions to us and your peers throughout the bootcamp
- Do your best to complete the exercises as a group
- Help each other

## HOT TIP

Sometimes, we'll have tips that will help make your life/research easier. We'll throw them into these Hot Tip boxes. Look out for the pepper!



# Expectations

This bootcamp is about helping you become the best Astro grad student/researcher you can be!

This is not about grading or becoming expert in any of these concepts. It's about knowing that these tools and techniques exist, letting you get your hands dirty with them, and knowing where to search for help.

Our expectations for you are:

- Try things
- Ask questions
- Do your best
- Help each other

## COOL CATCH

Sometimes, there'll be something we want to point out that we want to warn you about, or make you aware of before it causes a problem. That'll be in these cool catch boxes. Look for the snowflake.



# Rough Schedule

Times	Session	What are you doing?
Thursdays 1 PM – 3 PM	<b>Demos and Lectures</b>	We'll take lead, and we encourage you to follow along and run things at the same time we are. Any code we want you to type, we'll share with you through the slack channel.
In-between Sessions	<b>Take “Home” Exercises</b>	Feel free to ask each other or us for help. If you have any tech issues at this point as well, please feel free to post in the slack channel
Fridays 12 PM – 1 PM	<b>Recap + Value Added Session</b>	We'll come back together to work through an exercise together and go through some “value added” concepts

# Time and Project Management

# Allow your future self to thank your past self

- Our idea of academia...
- The reality of academia...



# Tips to a less stressed work life

- Deadlines really matter, and don't matter at all



# Tips to a less stressed work life

- Deadlines really matter, and don't matter at all
- Eat the frog



# Tips to a less stressed work life

- Deadlines really matter, and don't matter at all
- Eat the frog
- Don't confuse being 'busy' for being effective (NYT article, postdoc article)



# Tips to a less stressed work life

- Deadlines really matter, and don't matter at all
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# Tips to a less stressed work life

- Deadlines really matter, and don't matter at all
- Eat the frog
- Don't confuse being 'busy' for being effective
- 80/20 rule
- Parkinson's rule



# Tips to a less stressed work life

- Make a (work) budget – transition to work

# Tips to a less stressed work life

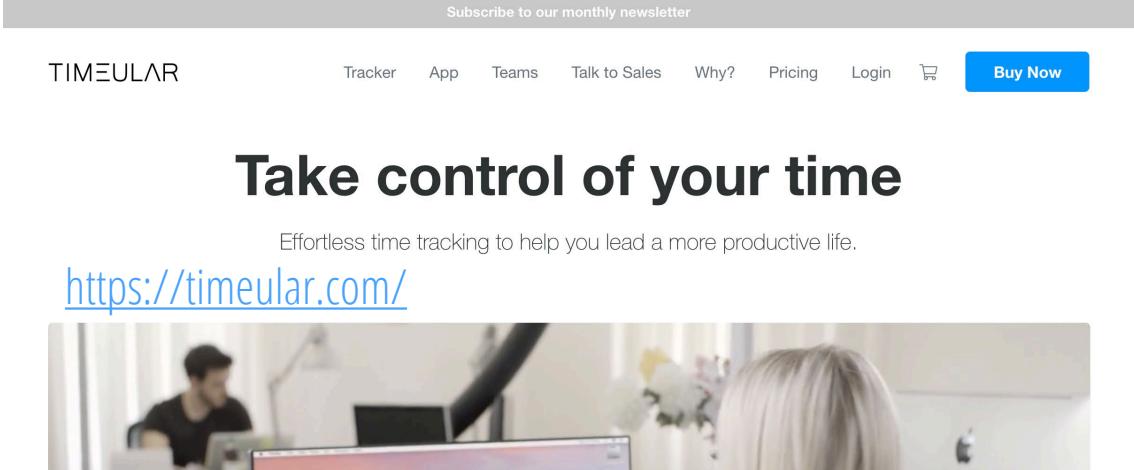
- Make a (work) budget
- No, really.
- Forgive yourself.

# Tips to a less stressed work life

- Make a (work) budget
- No, really.
- Forgive yourself.
- Don't hide.

# Tips to a less stressed work life

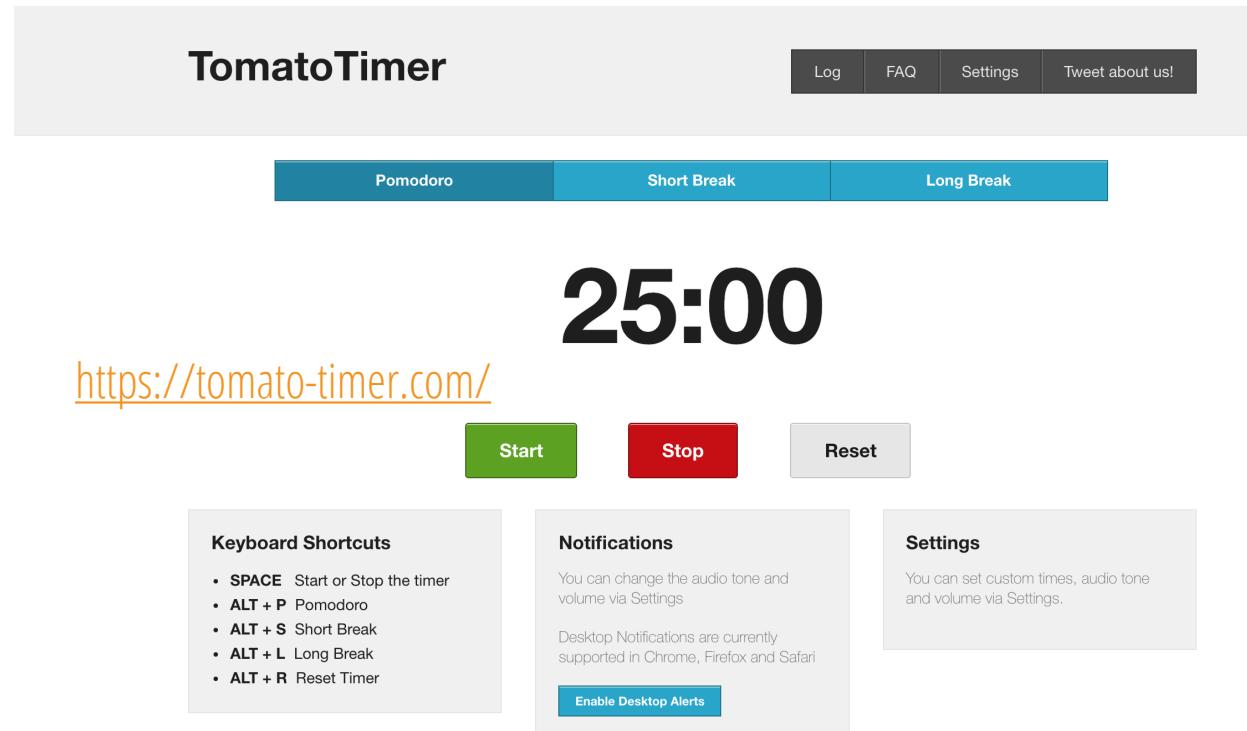
- Make a (work) budget
- No, really.



The screenshot shows the TIMEULAR homepage. At the top, there's a grey bar with the text "Subscribe to our monthly newsletter". Below it is the TIMEULAR logo and a navigation bar with links: Tracker, App, Teams, Talk to Sales, Why?, Pricing, Login, and a shopping cart icon. To the right of the cart is a blue "Buy Now" button. The main heading "Take control of your time" is displayed in a large, bold, dark font. Below it is a subtitle: "Effortless time tracking to help you lead a more productive life." A small image of two people working at a desk is shown below the subtitle. At the bottom of the page is a large, blurry image of a person working at a computer.

<https://timeular.com/>

- Keep track of how long things *actually* take.
- Get better at estimating, keep iterating. Build in contingency.



The screenshot shows the TomatoTimer website. The header features the text "TomatoTimer" and a navigation bar with links: Log, FAQ, Settings, and "Tweet about us!". Below the header is a large digital timer displaying "25:00". Underneath the timer are three buttons: "Pomodoro" (green), "Short Break" (light blue), and "Long Break" (light blue). The main content area has three sections: "Keyboard Shortcuts" (listing SPACE, ALT + P, ALT + S, ALT + L, and ALT + R), "Notifications" (describing how audio tone and volume can be changed via Settings), and "Settings" (describing how custom times, audio tone, and volume can be set via Settings). At the bottom of the content area is a blue "Enable Desktop Alerts" button.

<https://tomato-timer.com/>

# Tips to a less stressed work life

- Make a (work) budget
- No, really.

The screenshot shows the TIMEULAR homepage. At the top, there's a grey bar with the text "Subscribe to our monthly newsletter". Below it is a navigation bar with links: Tracker, App, Teams, Talk to Sales, Why?, Pricing, Login, and a shopping cart icon. To the right of the cart is a blue "Buy Now" button. The main heading "Take control of your time" is displayed in large, bold, dark text. Below it, a subtitle reads "Effortless time tracking to help you lead a more productive life." A small video thumbnail at the bottom left shows two people working at a desk. The URL <https://timeular.com/> is printed below the screenshot.

- Keep track of how long things *actually* take.
- Get better at estimating, keep iterating. Build in contingency.

## HOT TIP

Try out different tools/software until you find something that 'sticks'. There is no wrong answer if it works for you!



The screenshot shows the TomatoTimer website. At the top, the title "TomatoTimer" is centered. To its right are links for Log, FAQ, Settings, and Tweet about us!. Below the title is a large digital timer displaying "25:00". Underneath the timer are three buttons: "Pomodoro" (dark teal), "Short Break" (light blue), and "Long Break" (light blue). To the right of the timer are three boxes: "Keyboard Shortcuts", "Notifications", and "Settings". The "Keyboard Shortcuts" box lists: SPACE Start or Stop the timer, ALT + P Pomodoro, ALT + S Short Break, ALT + L Long Break, and ALT + R Reset Timer. The "Notifications" box says you can change audio tone and volume via Settings, and notes desktop notifications are supported in Chrome, Firefox, and Safari. It has a "Enable Desktop Alerts" button. The "Settings" box says you can set custom times, audio tone, and volume via Settings.

# Stress Happens: How to build Resilience

## Case Study

Your laptop fell off your desk and has to be taken in for repairs for a week. You are due to send a draft of your thesis proposal to your committee on Thursday. What now?

# Stress Happens: How to build Resilience

## Case Study

Your laptop fell off your desk and has to be taken in for repairs for a week. You are due to send a draft of your thesis proposal to your committee on Thursday. What now?

## How to avoid decision paralysis:

- How should I prepare for the conversation?
- What are valid/core responsibilities?
  - Who are you responsible to?
  - Who is responsible to you?
- What should your expectations be?
- What can you expect from others/faculty/advisor/etc?
- Can I come up with solutions?

# Project Management

- Treat your research like a job, not a 'calling'

Trello lets you work more collaboratively and get more done.

Trello's boards, lists, and cards enable you to organize and prioritize your projects in a fun, flexible, and rewarding way.



Sign Up – It's free!

The image shows a screenshot of a Trello application interface. On the left, a board titled "Collecting Data" is visible, containing three cards:

- Invited article
- Gaslighting book
- Archive article

Each card includes a small icon, a due date of "Apr 30, 2019", a comment count of "1", and a checkmark indicating it is complete. A link to "Add another card" is at the bottom. To the right, another board titled "Analyze Data" is partially visible, showing a single card for "Chapter 5: Conclusion".

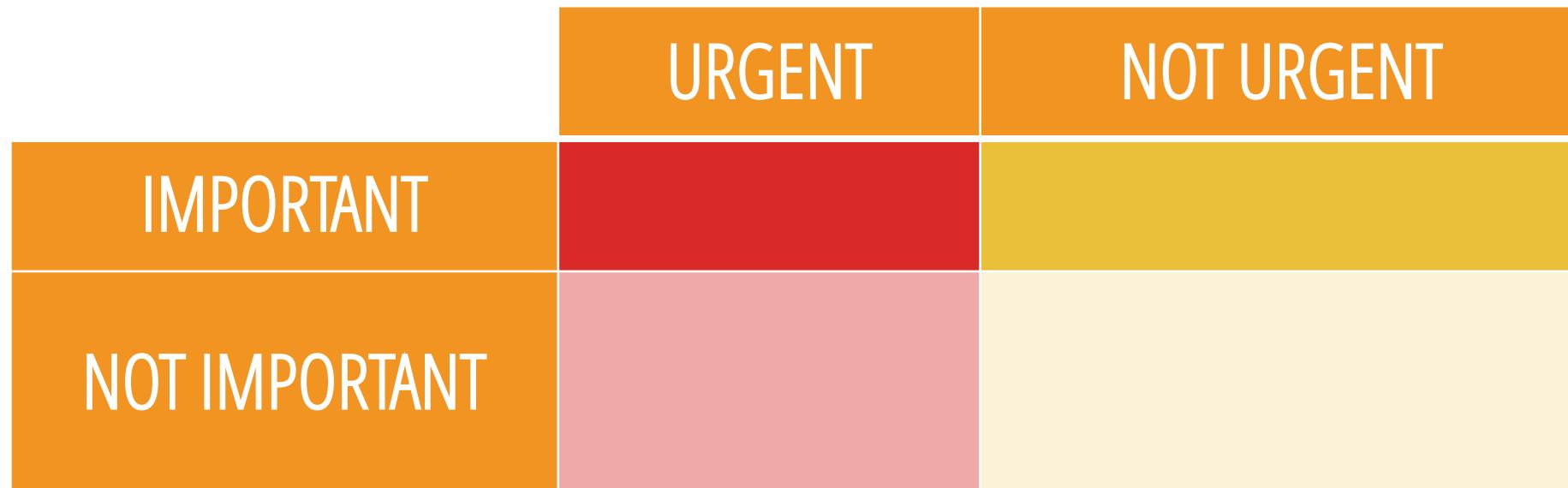
# Time management is not optional

- Learning how you work/what works for you takes a while, but be intentional about it. Watch this talk.



- <https://www.youtube.com/watch?v=oTugjssqOT0>

# Covey Quadrants

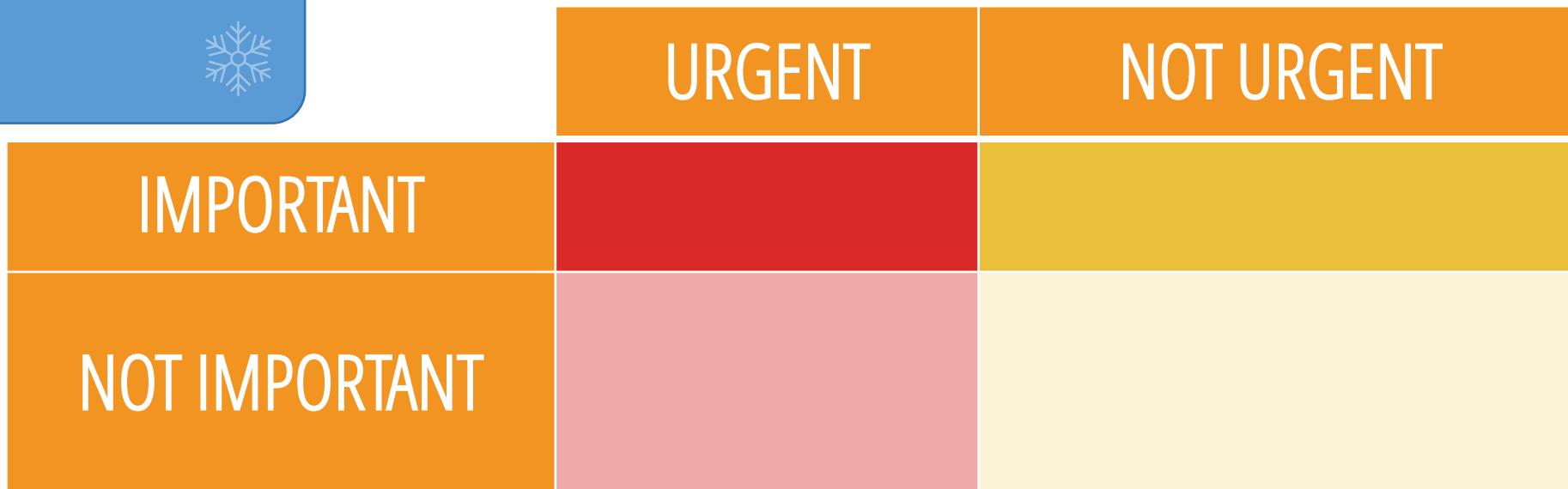


## COOL CATCH

Your advisor will almost always put things in the URGENT quadrant – that's the hardest to separate



# Covey Quadrants

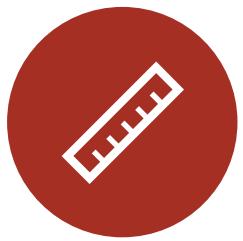




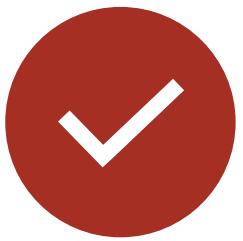
# SMART goals



SPECIFIC



MEASUREABLE



ATTAINABLE

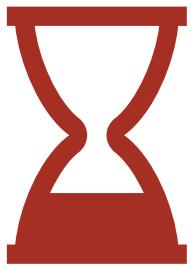


RELEVANT

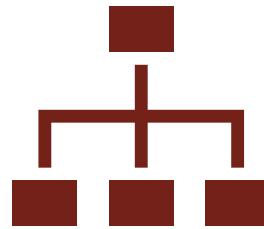


TIME-BASED

# Productive Procrastination



When waiting for code to compile... check the ArXiv

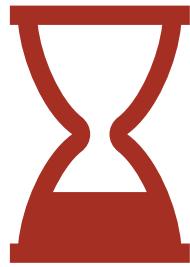


Make sure to get the big things (that you need to wait on other people for) out of the way first, then do plots/fun/email

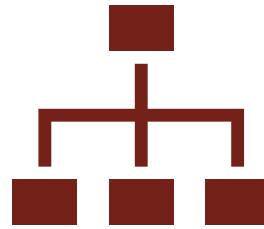


Take account of your time

# Productive Procrastination



When waiting for code to compile... check the ArXiv



Make sure to get the big things (that you need to wait on other people for) out of the way first, then do plots/fun/email

## COOL CATCH

This does **not** mean working while watching TV! Down time is really important.



Take account of your time

# (Try not to) let your email/inbox overwhelm you

The screenshot shows the Toodledo web interface. On the left, a sidebar lists categories: My Tasks, All Tasks (selected), Starred, Hotlist, RECENT (Recently Added, Recently Completed, Recently Modified), and a search icon. The main area displays a table of tasks with columns: Task, Folder, Due Date ↑, Repeat, Priority, and a delete icon. The tasks are grouped by due date: "Due Tomorrow" and "Due in the next 7 days".

Task	Folder	Due Date ↑	Repeat	Priority	
SRD PR	Work Admin	Tomorrow	None	3 Top	
SO CC stuff	Work Admin	Tomorrow	Weekly	2 High	
Check DC2 pull requests	Work Admin	Aug 26	Weekly	2 High	
H(z) coding - check w(z) derivatives	Science				
P(k) clearing house	Science				
book review	Science				
Check rise/decay time for Jenny sims	Science				
LSST simulation check for peculiar velocity	Science				
Read/edit the writing for manifest galaxy	Creative				

See Github too

The screenshot shows the Get It Done task manager. At the top, it says "Accomplish More with *Get It Done!*". Below is a call-to-action button "Get started for free!". To the right, there's a section titled "From Home, Work, or Anywhere In Between" with the text: "Get It Done is a task manager for your web browser and your smart phone. No matter where you are, your tasks will always be in sync." Below this are images of a desktop computer, a tablet, and a smartphone, all displaying the same task list.

getitdone

Accomplish More with *Get It Done!*

From Home, Work, or Anywhere In Between

Get It Done is a task manager for your web browser and your smart phone. No matter where you are, your tasks will always be in sync.

Get the app for free or get all the features for only \$39 a year.

Get started for free!

# Intentionality

01

Be online when it  
matters  
  
(not all the time)

02

Communicate your  
style and talk about it  
with your advisor

03

Have a buddy system

04

Challenge each other

05

Take *real* breaks  
  
(including between  
Zooms)

# BREAK!

# LaTeX and Overleaf

# LaTeX intro

- LaTeX is a markup language (think: html), which means you type certain commands around your text/input which control the look and feel of that input.
- If you want to change certain style elements of the document, using pre-existing commands means that all those elements change together.
- It can be clunky at first, but believe me *it will change your life*



# LaTeX syntax

- All documents start with some preamble to define document types/formatting

```
\usepackage{lineno}
\linenumbers
\setjournal{\apj}
\documentclass[iop,revtex4-1]{\color{red}hackemulateapj}

\usepackage{epsfig}
\usepackage{epstopdf}
\usepackage{graphicx}
```

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```

```
\usepackage{epsfig}  
\usepackage{epstopdf}  
\usepackage{graphicx}
```

Pre-defined packages that do specific things, like  
help me include figures (graphics) or add line  
numbers to my document (lineno)

# LaTeX syntax

- All documents start with some preamble to define document types/formatting

```
\usepackage{lineno}
\linenumbers
\setjournal{\apj}
\documentclass[iop,revtex4-1]{hackemulateapj}

\usepackage{epsfig}
\usepackage{epstopdf}
\usepackage{graphicx}
```

define my document class (which is set to something for the Institute of Physics or IOP) and define its style (something I've called hackemulateapj, because I hacked a previous style file called emulateapj which emulates the ApJ style file)

# LaTeX syntax

- I then start writing my text, putting various things in special environments (e.g. figure captions, sections, the abstract)

```
\begin{document}  
  \title{A copy of an actual paper I'm working on}  
  \input{Starfish_folder/authors}  
  \input{./PLASTICC_sims_newcommand.tex}
```

```
\begin{abstract}
```

Next-generation surveys like the Legacy Survey of Space and Time (LSST) on the Vera C. Rubin Observatory will generate orders of magnitude more discoveries of transients and variable stars than previous surveys. To prepare for this data deluge, we developed \texttt{PLASTICC} (\texttt{acro}), a competition and associated simulated data set to challenge the community. \texttt{acro} took place between \texttt{DATESTART} and \texttt{DATESTOP}, with 1094 teams participating in the challenge which was hosted by the data-science platform [Kaggle](#). The aim of \texttt{acro} was to develop novel solutions to the problem of transient classification in a large, non-representative photometric data set.

# LaTeX syntax

- I then start writing my text, putting various things in special environments (e.g. figure captions, sections, the abstract)

Kicks things off

```
\begin{document}  
  \title{A copy of an actual paper I'm working on}  
  \input{Starfish_folder/authors}  
  \input{./PLASTICC_sims_newcommand.tex}
```

This means I have another file with lots of pre-defined symbols/commands in it

This generates the title and abstract

```
\begin{abstract}
```

Next-generation surveys like the Legacy Survey of Space and Time (LSST) on the Vera C. Rubin Observatory will generate orders of magnitude more discoveries of transients and variable stars than previous surveys. To prepare for this data deluge, we developed \texttt{PLASTICC} (\texttt{acro}), a competition and associated simulated data set to challenge the community. \texttt{acro} took place between \texttt{DATESTART} and \texttt{DATESTOP}, with 1094 teams participating in the challenge which was hosted by the data-science platform [Kaggle](#). The aim of \texttt{acro} was to develop novel solutions to the problem of transient classification in a large non-representative photometric data set.

# What it generates...

DRAFT VERSION SEPTEMBER 10, 2020  
Preprint typeset using L<sup>A</sup>T<sub>E</sub>X style emulateapj v. 01/23/15

## A COPY OF AN ACTUAL PAPER I'M WORKING ON

R. HLOŽEK<sup>1, 2</sup>

(A COLLABORATION)

<sup>1</sup> Department of Astronomy and Astrophysics, University of Toronto, 50 St. George St., Toronto, ON M5S 3H4, Canada

<sup>2</sup> Dunlap Institute for Astronomy and Astrophysics, University of Toronto, 50 St. George St., Toronto, ON M5S 3H4, Canada

*Draft version September 10, 2020*

## ABSTRACT

Next-generation surveys like the Legacy Survey of Space and Time (LSST) on the Vera C. Rubin Observatory will generate orders of magnitude more discoveries of transients and variable stars than previous surveys. To prepare for this data deluge, we developed Photometric LSST Astronomical Time Series Classification Challenge (PLAsTiCC), a competition and associated simulated data set to challenge the community. PLAsTiCC took place between 2018 Sep 28 and 2018 Dec 17, with 1094 teams participating in the challenge which was hosted by the data-science platform Kaggle. The aim of PLAsTiCC was to develop novel solutions to the problem of transient classification in a large, non-representative photometric data set. Three winners were announced in February 2019, and a range of classification solutions were produced by the participants. This is a comment I want to insert (Renee) The machine learning techniques utilized by the community included hybrid combinations and ensemble averages of a range of approaches, including boosted decision trees, neural networks and multi-layer perceptrons (MLPs). We summarize the challenge entries and classes of solutions, highlight the performance of the winning solutions, and discuss how combining different approaches leads to further improvement in the performance of the classifiers.

### 1. INTRODUCTION

The Legacy Survey of Space and Time (LSST, [LSST Science Collaboration et al. 2009](#)) of the Vera C. Rubin

SuperNova ANalysis (SNANA) simulation code. We list the validations performed on the simulations below. **Confusing artifacts** – When processing light curves and metadata (additional information on the objects

# LaTeX is great for mathematics

- Using pre-defined symbols takes you from this

---

```
The \acro-metric was a weighted log-loss
\begin{eqnarray}
\label{eq:logloss}
L &\equiv& -\sum_{m=1}^N w_m \sum_{n=1}^M \tau_{n,m} \ln[p(m \mid d_n)],
\end{eqnarray}
where
\begin{eqnarray}
\label{eq:indicator}
\tau_{n,m} &\equiv&
\begin{cases}
0 & m_n \neq m \\
1 & m_n = m
\end{cases}
\end{eqnarray}
```

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\tau_{n,m} &\equiv&
\begin{cases}
0 & m_n \neq m \\
1 & m_n = m
\end{cases}
\end{eqnarray}
```

## HOT TIP

These mathematical symbols/notation will come about in handy later when we use matplotlib



# LaTeX is great for mathematics

- To this

The PLAsTiCC metric was a weighted log-loss

$$L \equiv - \sum_{m=1}^N w_m \sum_{n=1}^M \tau_{n,m} \ln[p(m \mid d_n)], \quad (1)$$

where

$$\tau_{n,m} \equiv \begin{cases} 0 & m_n \neq m \\ 1 & m_n = m \end{cases} \quad (2)$$

If you move this equation around in the text, LaTeX will keep track of its location/numbering

# LaTeX is great for mathematics

- To this

## HOT TIP

Want a math symbol in LaTeX but don't know what it's called? Detexify it!

<http://detexify.kirelabs.org>



The PLAsTiCC metric was a weighted log-loss

$$L \equiv - \sum_{m=1}^N w_m \sum_{n=1}^M \tau_{n,m} \ln[p(m \mid d_n)], \quad (1)$$

where

$$\tau_{n,m} \equiv \begin{cases} 0 & m_n \neq m \\ 1 & m_n = m \end{cases} \quad (2)$$

If you move this equation around in the text, LaTeX will keep track of its location/numbering

# Figures and tables exist in environments

- you \begin and \end the environments to start/end a table.

```
\begin{table*}
```

the \* will mean it takes up the full  
page (as opposed to a column)

```
\begin{center}
```

```
\begin{tabular}{cccccccccc}
```

```
\hline
```

```
\hline
```

```
Name & \multicolumn{3}{c}{Boosted Decision Trees} & &
```

```
\multicolumn{4}{c}{Neural Nets} \\
```

```
\cline{2-4}
```

```
\cline{6-9}
```

```
& LightGBM & CatBoost & XGBoost & & NN & CNN & RNN &
```

```
MLP \\
```

```
\hline
```

```
\topplace & \cmark & \xmark & \xmark & & \xmark &
```

```
\xmark & \xmark & \xmark \\
```

```
\secondplace & \cmark & \xmark & \xmark & & \xmark &
```

# Figures and tables exist in environments

- you \begin{ and \end{ the environments to start/end a table.

Name	Boosted Decision Trees			Neural Nets			
	LightGBM	CatBoost	XGBoost	NN	CNN	RNN	MLP
Kyle Boone (avocado)	✓	✗	✗	✗	✗	✗	✗
Mike & Silogram	✓	✗	✗	✗	✗	✓	✗
Major Tom, mamas & nyapn	✓	✓	✗	✗	✓	✗	✗
Ahmet Erdem	✓	✗	✗	✓	✗	✗	✗
SKZ Lost in Translation	✓	✗	✗	✗	✗	✓	✓
Stefan Stefanov	✗	✗	✗	✓	✗	✗	✗
rapids.ai	✓	✗	✗	✗	✗	✓	✓
Three Muskateers	✓	✓	✓	✗	✓	✗	✗
Simon Chen	✓	✗	✗	✗	✗	✗	✗

# References are defined in a bibliography file

```
@ARTICLE{biswas/opsim,
    author = {{Biswas}, Rahul and {Daniel}, Scott F. and {Hlo\v{z}ek},
              R. and
              {Kim}, A.-G. and {Yoachim}, Peter and
              {LSST Dark Energy Science Collaboration}},
    title = "{Enabling Catalog Simulations of Transient and Variable
              Sources Based on LSST Cadence Strategies}",
    journal = {\apjs},
    keywords = {Astrophysics - Instrumentation and Methods for
               Astrophysics, Astrophysics - Cosmology and Nongalactic Astrophysics},
    year = 2020,
    month = apr,
    volume = {247},
    number = {2},
    eid = {60},
    pages = {60},
    doi = {10.3847/1538-4365/ab72f2},
archivePrefix = {arXiv},
    eprint = {1905.02887},
primaryClass = {astro-ph.IM},
    adsurl = {https://ui.adsabs.harvard.edu/abs/2020ApJS..247...60B},
    adsnote = {Provided by the SAO/NASA Astrophysics Data System}
}
```

This is how the citation defined in a .bib file

This is how the citation is referenced in the main text

Once the 'pure' source model is obtained, it is combined with a noise model specific to the observational conditions of LSST `\cite{biswas/opsim}`, including the cadence information, zero points, sky noise, and point spread function (PSF) `\cite{snana}`. The objects have to

# References are defined in a bibliography file

```
% Include both collaboration papers and external  
citations:  
\bibliographystyle{apsrev}  
\bibliography{results,metric}
```

Once the ‘pure’ source model is obtained, it is combined with a noise model specific to the observational conditions of LSST [Biswas et al. \(2020\)](#), including the cadence information, zero points, sky noise, and point

You define your bibliography style and then also tell LaTeX where to look (here in files results.bib and metric.bib)

This is how the reference appears in the text (for this particular referencing style)

R. Biswas, S. F. Daniel, R. Hložek, A. G. Kim, P. Yoachim, and LSST Dark Energy Science Collaboration, *ApJS* **247**, 60 (2020), 1905.02887.

This is what the reference looks like at the end of the file

# References are defined in a bibliography file

```
% Include both collaboration papers and external  
citations:  
\bibliographystyle{plain}  
\bibliography{results,metric}
```

If you change the bibliography style file

Once the ‘pure’ source model is obtained, it is combined with a noise model specific to the observational conditions of LSST (4), including the cadence information, zero points, sky noise, and point spread function (PSF) (16). The objects have to be ‘detected’ in order

This is how the reference appears in the text  
(for this particular referencing style)

[4]Rahul Biswas, Scott F. Daniel, R. Hložek, A. G. Kim, Peter Yoachim, and LSST Dark Energy Science Collaboration. Enabling Catalog Simulations of Transient and Variable Sources Based on LSST Cadence Strategies. *ApJS*, 247(2):60, April 2020.

This is what the reference looks like at the end of the file

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```

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## COOL CATCH



LaTeX is great about re-ordering references, but it really doesn't like if you define something twice – so keep that .bib file clean.

This is what the reference looks like at the end of the file

# References are defined in a bibliography file

```
% Include both collaboration papers and external  
citations:  
\bibliographystyle{plain}  
\bibliography{results,metric}
```

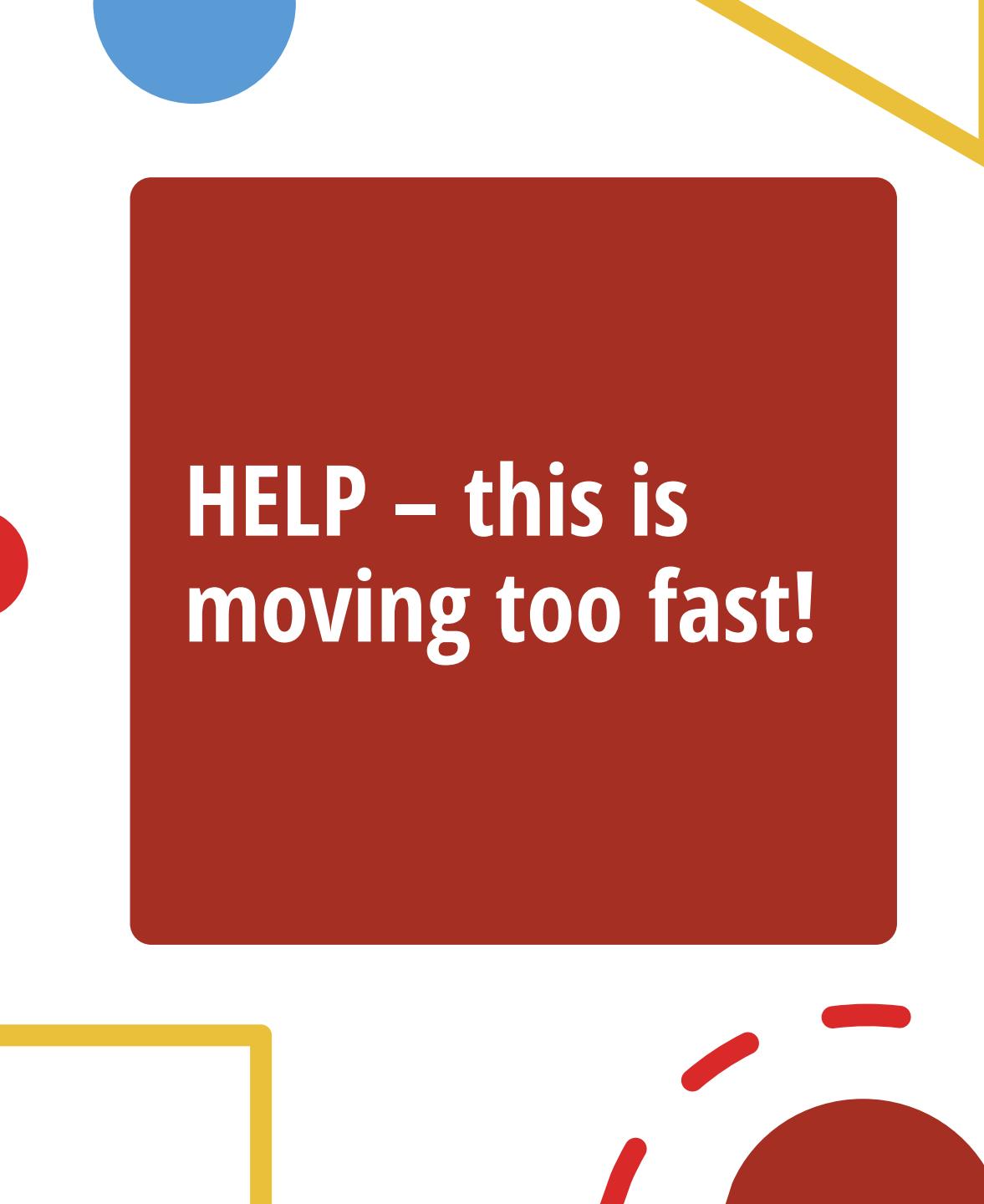
If you change the bibliography style file

Once the ‘pure’ source model is obtained, it is combined with a noise model specific to the observational conditions of LSST (4), including the cadence information, zero points, sky noise, and point spread function (PSF) (16). The objects have to be ‘detected’ in order

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[4]Rahul Biswas, Scott F. Daniel, R. Hložek, A. G. Kim, Peter Yoachim, and LSST Dark Energy Science Collaboration. Enabling Catalog Simulations of Transient and Variable Sources Based on LSST Cadence Strategies. *ApJS*, 247(2):60, April 2020.

This is what the reference looks like at the end of the file



# **HELP – this is moving too fast!**

- Don't worry – the internet is your friend.
- Google the thing you want to do and there is almost certainly an answer. Also, ask your colleagues/students/mentors for advice.
- Everyone loves teaching people their LaTeX tricks

# Overleaf/styles/templates

- Overleaf is online LaTeX editing software that you can use to compile LaTeX and collaborate with others.
- LOTS of templates for articles/reports etc. -- check out the AAS template

The screenshot shows the Overleaf web interface. On the left, there's a sidebar with navigation links: 'New Project' (highlighted in green), 'All Projects', 'Your Projects' (highlighted in blue), 'Shared with you', 'Archived Projects' (with a 'i' icon), 'Trashed Projects' (with a 'i' icon), 'TAGS/FOLDERS', and '+ New Folder'. The main area has a search bar labeled 'Search projects...'. Below it is a table listing projects:

<input type="checkbox"/> Title	Owner	Last Modified
PLAsTiCC_results	You	35 minutes ago
SO_Governance	You	14 days ago by '
The Atacama Cosmology Telescope: Constraining the primordial power spectrum with ACTPol 98 and 150 GHz data	You	15 days ago by '
Canadian LSST contributions	You	10 months ago
litebird-sms-documents2	You	10 months ago

# Overleaf/styles/templates



Demo Time!  
Overleaf

- Overleaf is online LaTeX editing software that you can use to compile LaTeX and collaborate with others.
- LOTS of templates for articles/reports etc.

The screenshot shows the Overleaf web interface. On the left, there's a sidebar with a 'New Project' button and links for 'Blank Project', 'Example Project', 'Upload Project', 'Import from GitHub', 'Templates', 'Academic Journal', 'Book', 'Formal Letter', and 'Homework Assignment'. The main area has a search bar labeled 'Search projects...'. Below it is a table listing several projects:

Title	Owner	Last Modified
PLAsTiCC_results	You	35 minutes ago
SO_Governance	You	14 days ago by '
The Atacama Cosmology Telescope: Constraining the primordial power spectrum with ACTPol 98 and 150 GHz data	You	15 days ago by '
Canadian LSST contributions	You	10 months ago
litebird-sms-documents2	You	10 months ago
LSST CFI Preproposal		

# Overleaf/styles/templates



Demo Time!  
Overleaf

<https://www.overleaf.com/read/tntwghqvcxzh>

Overleaf

New Project

- Blank Project
- Example Project
- Upload Project
- Import from GitHub
- Templates
- Academic Journal
- Book
- Formal Letter
- Homework Assignment

Search projects...

<input type="checkbox"/> Title	Owner	Last Modified
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<a href="#">Canadian LSST contributions</a>	You	10 months ago
<a href="#">litebird-sms-documents2</a>	You	10 months ago
<a href="#">LSST CFI Preproposal</a>		

# Keeping tidy/sync often

- Backup early and often! UofT gives us all 1TB of OneDrive space
- Overleaf can sync to Dropbox & Github - so you can work offline
- Try keeping the main .tex file bare, keep definitions in their own .input files



# Looking at the Literature through ADS

# Literature & Research

- Don't expect yourself to understand everything immediately
  - Reading scientific papers is a skill you will develop
- You will read papers, and re-read them, and re-read them...
  - And you'll retain something new each time!
- You will search the literature, then search it again, and again...
  - After all, we are doing **re**search! :)

# (Re)searching the literature



Limit query to:  Astronomy  Physics  General

Author  AND  OR

Object  AND  OR

Publication date between  
 /  and  /

Title  AND  OR  BOOLEAN

Abstract/Keywords  AND  OR  BOOLEAN

Refereed only  Articles only

Publication(s)  
Press Return Key To Add Publication

Sort

ADS: astrophysics data system (bookmark!)  
<https://ui.adsabs.harvard.edu/classic-form>

# (Re)searching the literature



Limit query to:  Astronomy  Physics  General

Search

Author  AND  OR

Object  AND  OR

Publication date between

 /  and  / 

Title

AND  OR  BOOLEAN

Abstract/Keywords

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Refereed only  Articles only

Publication(s)

Press Return Key To Add Publication

Sort

 Date ▾

Clear

Search

ADS: astrophysics data system (bookmark!)

<https://ui.adsabs.harvard.edu/classic-form>

# (Re)searching the literature

The screenshot shows the ADS search interface in 'Classic Form'. At the top, there's a logo with a magnifying glass over an 'a' and the text 'astrophysics data system'. Below it are three navigation links: 'Classic Form' (highlighted with a red oval), 'Modern Form', and 'Paper Form'. Underneath these are search filters: 'Limit query to' with checkboxes for 'Astronomy' (checked), 'Physics', and 'General'; 'Author' search fields for '(Last, First M) one per line' and 'Object' search fields for 'SIMBAD object search (one per line)'; and a date range selector for 'Publication date between' with fields for 'MM / YYYY' and 'MM / YYYY'. There are also sections for 'Title', 'Abstract/Keywords', and checkboxes for 'Refereed only' and 'Articles only'. A 'Publication(s)' section allows adding journal titles via a text input field. At the bottom, there's a 'Sort' dropdown menu set to 'Date' and a row of buttons: 'Clear' (with a delete icon), 'Search' (in blue), and another 'Search' button.

ADS: astrophysics data system (bookmark!)  
<https://ui.adsabs.harvard.edu/classic-form>

The screenshot shows the ADS search interface in 'Modern Form'. The layout is similar to the 'Classic Form' but with some changes. The top navigation links are 'Classic Form', 'Modern Form' (highlighted with a red oval), and 'Paper Form'. Below the links is a 'QUICK FIELD' dropdown menu with options: Author, First Author, Abstract, Year, Fulltext, and All Search Terms. A search bar with a placeholder 'I' and a search icon is present. To the right of the search bar is a table of search terms and their corresponding queries:

author	author:"huchra, john"	citations	citations(author:"huchra, j")
first author	author:"^huchra, john"	references	references(author:"huchra, j")
abstract + title	abs:"dark energy"	reviews	reviews("gamma-ray bursts")
year	year:2000	refereed	property:refereed
year range	year:2000-2005	astronomy	collection:astronomy
full text	full:"gravity waves"	OR	abs:(planet OR star)
publication	bibstem:ApJ		



Use a classic ADS-style form



Learn more about searching  
the ADS



Access ADS data with our  
API

# (Re)searching the literature

The screenshot shows the ADS Classic Form search interface. At the top, there's a logo with a magnifying glass over an 'a' and the text "astrophysics data system". Below the logo are three navigation links: "Classic Form" (highlighted with a red oval), "Modern Form", and "Paper Form".  
  
The search form includes:

- A "Limit query to:" section with checkboxes for "Astronomy" (checked), "Physics", and "General".
- "Author" and "Object" search fields, each with "AND" and "OR" radio buttons and input boxes for "(Last, First M) one per line" and "SIMBAD object search (one per line)".
- "Publication date between" fields for selecting start and end dates.
- "Title" and "Abstract/Keywords" search fields, each with "AND", "OR", and "BOOLEAN" radio buttons.
- Checkboxes for "Refereed only" and "Articles only".
- A "Publication(s)" section with a note to "Press Return Key To Add Publication" and a field for "Comma-separated bibstems of journal titles".
- A "Sort" dropdown menu with options "Date" and "Date ▾".
- Buttons for "Clear" and "Search".

ADS: astrophysics data system (bookmark!)  
<https://ui.adsabs.harvard.edu/classic-form>

The screenshot shows the ADS Modern Form search interface. At the top, there's a logo with a magnifying glass over an 'a' and the text "astrophysics data system". Below the logo are three navigation links: "Classic Form", "Modern Form" (highlighted with a red oval), and "Paper Form".  
  
The search form includes:

- A "QUICK FIELD" dropdown menu with options: Author, First Author, Abstract, Year, Fulltext, and All Search Terms (selected).
- A search bar with a placeholder "I" and a search button.
- A list of search terms and their corresponding queries:
  - author: author:"huchra, john"
  - first author: author:"^huchra, john"
  - abstract + title: abs:"dark energy"
  - year: year:2000
  - year range: year:2000-2005
  - full text: full:"gravity waves"
  - publication: publication:bibstem:ApJ
- Faceted search results on the right:
  - citations: citations(author:"huchra, j")
  - references: references(author:"huchra, j")
  - reviews: reviews("gamma-ray bursts")
  - refereed: property:refereed
  - astronomy: collection:astronomy
  - OR: abs:(planet OR star)



Use a classic ADS-style form



Learn more about searching  
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# Simple search for papers by Rubin

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author:(“Rubin”)



Your search returned 2,083 results

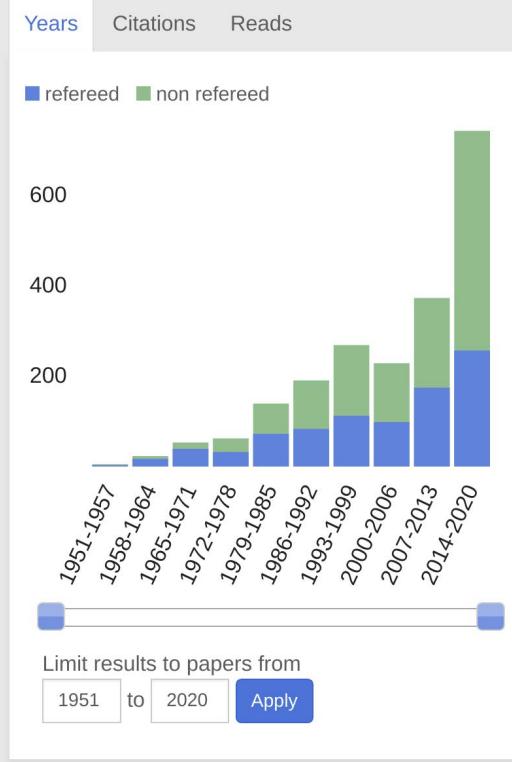
Collection  
+astronomy

Date ▾

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    - [Rubin, M](#) 384
    - [Rubin, D](#) 271
    - [Rubin, V](#) 255
    - [Rubin, R](#) 227
  - [more](#)
- ▼ COLLECTIONS
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    - [physics](#) 377
    - [general](#) 52
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    - [non-refereed](#) 1.1k
    - [refereed](#) 886
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Warren, Paul H.; Rubin, Alan E.
  - 2  [2020P&SS..18704924M](#) 2020/08     
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  - 3  [2020arXiv200808430B](#) 2020/08     
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  - 4  [2020arXiv200805988S](#) 2020/08     
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Schulze, Steve; Yaron, Ofer; Sollerman, Jesper [and 51 more](#)
  - 5  [2020arXiv200803576H](#) 2020/08     
[First in-situ detection of the CN radical in comets and evidence for a distributed source](#)  
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  - 6  [2020A&A...640C...3W](#) 2020/08     
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# Simple search for papers by Rubin

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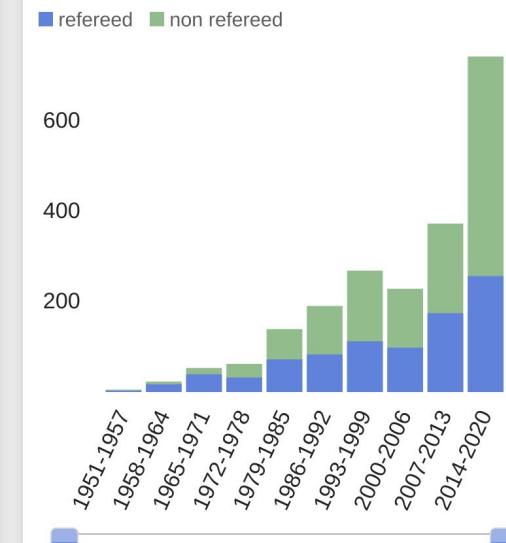
AUTHORS	
➤	<input type="checkbox"/> Rubin, A 614
➤	<input type="checkbox"/> Rubin, M 384
➤	<input type="checkbox"/> Rubin, D 271
➤	<input type="checkbox"/> Rubin, V 255
➤	<input type="checkbox"/> Rubin, R 227
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<input type="checkbox"/> non-refereed	1.1k
<input type="checkbox"/> refereed	886
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- 4  2020arXiv200805988S 2020/08   
The Palomar Transient Factory Core-Collapse Supernova Host-Galaxy Sample. I. Host-Galaxy Distribution Functions and Environment-Dependence of CCSNe  
Schulze, Steve; Yaron, Ofer; Sollerman, Jesper [and 51 more](#)
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2020/08



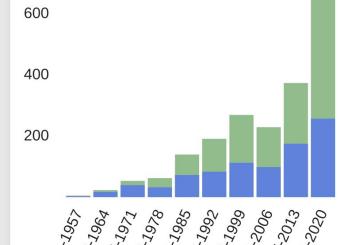
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1  2013AJ....146...92H

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Star Formation in Two Luminous Spiral Galaxies

Hunter, Deidre A.; Elmegreen, Bruce G.; Rubin, Vera C. [and 4 more](#)2  2013AAS...22114605A

2013/01

Star Formation in the Extreme Outer Disks of Giant Spiral Galaxies

Ashburn, Allison; Hunter, D. A.; Rubin, V. C.

3  2011BAAS...43..019C

2011/12

Obituary: Martin F. McCarthy (1923-2010)

Coyne, George; Rubin, Vera

4  2011ARA&A..49...1R

2011/09 cited: 1

An Interesting Voyage

Rubin, Vera C.

5  2011noao.prop..116J

2011/02

The Stellar Kinematics of Dwarf Irregular Galaxy DDO 125: Is this a galaxy without dark matter?

Jackson, Megan; Hunter, Deidre; Rubin, Vera [and 1 more](#)6  2011AAS...21725832W

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Wright, Teresa; Hunter, D.; Rubin, V.

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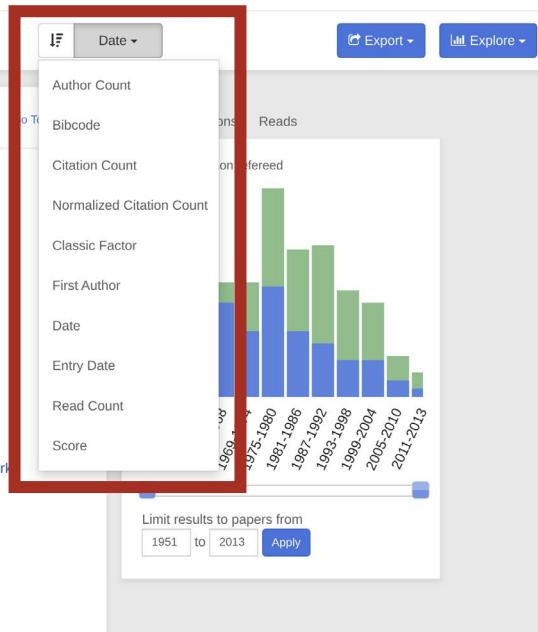
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  - 2 [2013AA...22114605A](#) 2013/01  
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  - 3 [2011BAAS...43..019C](#) 2011/12  
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  - 4 [2011ARA&A..49....1R](#) 2011/09 cited: 1  
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Rubin, Vera C.
  - 5 [2011noao.prop..116J](#) 2011/02  
The Stellar Kinematics of Dwarf Irregular Galaxy DDO 125: Is this a galaxy without dark matter?  
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  - 6 [2011AA...21725832W](#) 2011/01  
Star Formation in the Outer Disks of Spiral Galaxies  
Wright, Teresa; Hunter, D.; Rubin, V.
  - 7 [2010JAH...13..145R](#) 2010/07 cited: 1  
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2  2013AAS...22114605A 2013/01  
[Star Formation in the Extreme Outer Disks of Giant Spiral Galaxies](#)

Ashburn, Allison; Hunter, D. A.; Rubin, V. C.

3  2011BAAS...43..019C 2011/12  
[Obituary: Martin F. McCarthy \(1923-2010\)](#)

Coyne, George; Rubin, Vera

4  2011ARA&A..49....1R 2011/09 cited: 1  
[An Interesting Voyage](#)

Rubin, Vera C.

5  2011noao.prop..116J 2011/02  
[The Stellar Kinematics of Dwarf Irregular Galaxy DDO 125: Is this matter?](#)

Jackson, Megan; Hunter, Deidre; Rubin, Vera [and 1 more](#)

6  2011AAS...21725832W 2011/01  
[Star Formation in the Outer Disks of Spiral Galaxies](#)

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1  1980ApJ...238..471R 1980/06 cited: 992

[Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605 \(R=4kpc\) to UGC 2885 \(R=122kpc\).](#)

Rubin, V. C.; Ford, W. K., Jr.; Thonnard, N.

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[Rotation Curves of Spiral Galaxies](#)

Sofue, Yoshiaki; Rubin, Vera

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de Blok, W. J. G.; McGaugh, Stacy S.; Bosma, Albert [and 1 more](#)

6  1978ApJ...225L.107R 1978/11 cited: 423

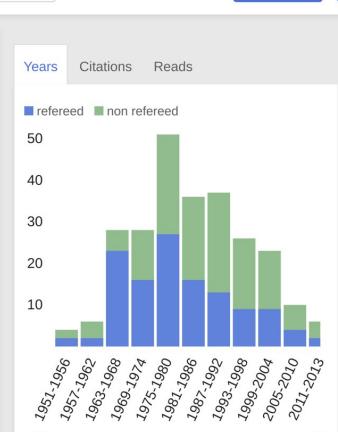
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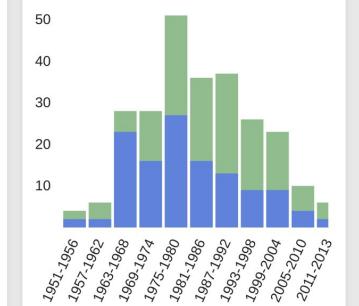
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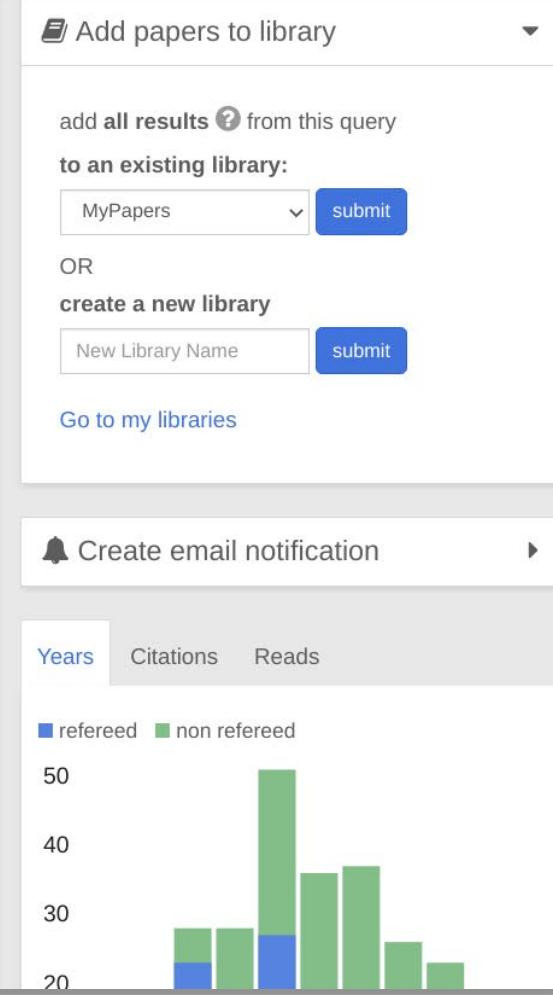
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Rotation of the Andromeda Nebula from a Spectroscopic Survey of Emission Regions  
Rubin, Vera C.; Ford, W. Kent, Jr.
- Abstract**  
Spectra of sixty-seven H I regions from 3 to 24 kpc from the nucleus of M31 have been obtained with the DTM image-tube spectrograph at a dispersion of 135 Å/mm'. Radial velocities, principally from Hα, have been determined with an accuracy of 10 km sec' for most regions. Rotational velocities ... [more](#)
- 3  1985ApJ...289...81R 1985/02 cited: 648     
Rotation velocities of 16 SA galaxies and a comparison of Sa, SB and SC rotation properties.  
Rubin, V. C.; Burstein, D.; Ford, W. K., Jr. [and 1 more](#)
- Abstract**  
Rotational velocities over most of the optical extent of 54 Sa, Sb, and Sc galaxies have been determined. The Sa curves exhibit a similar progression with luminosity as do the Sh



# So many options!

The screenshot shows the Astrophysics Data System (ADS) search interface. At the top, there's a navigation bar with links for Feedback, ORCID, About, and Account. Below the navigation is a search bar with the query "author:Rubin". The main content area displays a single search result for a paper by Rubin, V. C., Ford, W. K., Jr., and Thonnard, N. The abstract summary states: "Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605 (R=4kpc) to UGC 2885 (R=122kpc)." The right sidebar contains sections for Full Text Sources (ADS, NED, SIMBAD) and Data Products (NED, SIMBAD). The left sidebar provides various options for viewing and interacting with the paper, such as Abstract, Citations (993), References (33), Co-Reads, Similar Papers, Volume Content, Graphics, Metrics, and Export Citation.

QUICK FIELD: Author First Author Abstract Year Fulltext All Search Terms

author:"Rubin"

VIEW

Abstract

Citations (993)

References (33)

Co-Reads

Similar Papers

Volume Content

Graphics

Metrics

Export Citation

Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605 ( $R=4\text{kpc}$ ) to UGC 2885 ( $R=122\text{kpc}$ ).

Rubin, V. C.; Ford, W. K., Jr.; Thonnard, N.

For 21 Sc galaxies whose properties encompass a wide range of radii, masses, and luminosities, we have obtained major axis spectra extending to the faint outer regions, and have deduced rotation curves. The galaxies are of high inclination, so uncertainties in the angle of inclination to the line of sight and in the position angle of the major axis are minimized. Their radii range from 4 to 122 kpc ( $H = 50\text{km s}^{-1}\text{Mpc}^{-1}$ ); in general, the rotation curves extend to 83% or  $R_{25}^{1.5}$ . When plotted on a linear scale with no scaling, the rotation curves for the smallest galaxies fall upon the initial parts of the rotation curves for the larger galaxies. All curves show a fairly rapid velocity rise to  $V \sim 125\text{ km s}^{-1}$  at  $R \sim 5\text{ kpc}$ , and a slower rise thereafter. Most rotation curves are rising slowly even at the farthest measured point. Neither high nor low

FULL TEXT SOURCES

ADS NED SIMBAD

DATA PRODUCTS

NED (23) SIMBAD (21)

Add paper to library

# So many options!



Screenshot of the Astrophysics Data System (ADS) search results page for the query "author:Rubin".

The search bar shows the query "author:Rubin".

The main content area displays a single result:

**Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605 (R=4kpc) to UGC 2885 (R=122kpc).**

Abstract (selected):

Rubin, V. C.; Ford, W. K., Jr.; Thonnard, N.

For 21 Sc galaxies whose properties encompass a wide range of radii, masses, and luminosities, we have obtained major axis spectra extending to the faint outer regions, and have deduced rotation curves. The galaxies are of high inclination, so uncertainties in the angle of inclination to the line of sight and in the position angle of the major axis are minimized. Their radii range from 4 to 122 kpc ( $H = 50 \text{ km s}^{-1} \text{ Mpc}^{-1}$ ); in general, the rotation curves extend to 83% or  $R_{25}^{1.5}$ . When plotted on a linear scale with no scaling, the rotation curves for the smallest galaxies fall upon the initial parts of the rotation curves for the larger galaxies. All curves show a fairly rapid velocity rise to  $V \sim 125 \text{ km s}^{-1}$  at  $R \sim 5 \text{ kpc}$ , and a slower rise thereafter. Most rotation curves are rising slowly even at the farthest measured point. Neither high nor low

View options (left sidebar):

- Abstract (selected)
- Citations (993)
- References (33)
- Co-Reads
- Similar Papers
- Volume Content
- Graphics
- Metrics
- Export Citation

Full Text Sources (right sidebar):

- ADS
- NED (23)
- DATA PRODUCTS
- SIMBAD (21)

Add paper to library (right sidebar):

# So many options!

The screenshot shows the Astrophysics Data System (ADS) search interface. At the top, there's a navigation bar with links for Feedback, ORCID, About, and Account. Below the navigation is a search bar with the query "author:Rubin". To the right of the search bar is a large orange arrow pointing left. On the left side of the main content area, there's a sidebar with a "VIEW" section containing links for Abstract (which is highlighted in blue), Citations (993), References (33), Co-Reads, Similar Papers, Volume Content, Graphics, Metrics, and Export Citation. The main content area displays a paper abstract about rotational properties of 21 Sc galaxies. To the right of the abstract is another orange arrow pointing right. At the bottom right of the main content area is a "FULL TEXT SOURCES" section with links for ADS, NED (23), SIMBAD (21), and a "Add paper to library" button.

QUICK FIELD: Author First Author Abstract Year Fulltext All Search Terms

author:"Rubin"

VIEW

Abstract

Citations (993)

References (33)

Co-Reads

Similar Papers

Volume Content

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Show affiliations

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## COOL CATCH

There can be multiple versions of a paper on ADS and arxiv. Always look at the most up-to-date version. Things can change between pre-print and publication!



# So many options!

The screenshot shows the Astrophysics Data System (ADS) search interface. At the top, there's a navigation bar with links for Feedback, ORCID, About, and Account. Below it is a search bar with the query "author:Rubin". To the right of the search bar is a large orange arrow pointing left. On the left side of the main content area, there's a sidebar with a "VIEW" section containing links for Abstract (which is highlighted in blue), Citations (993), References (33), Co-Reads, Similar Papers, Volume Content, Graphics, Metrics, and Export Citation. The main content area displays a paper abstract about rotational properties of 21 Sc galaxies. To the right of the abstract is another sidebar with "FULL TEXT SOURCES" (ADS, NED 23, SIMBAD 21) and an "Add paper to library" button. A large orange arrow points right from the bottom of this sidebar towards the end of the page.

"This paper is awesome!  
How can I cite it?"

# So many options!

The screenshot shows the Astrophysics Data System (ADS) search interface. At the top, there's a navigation bar with links for Feedback, ORCID, About, and Account. Below it is a search bar with the query "author:Rubin". To the right of the search bar is a large orange arrow pointing left. On the left side, there's a sidebar with various options: VIEW, Abstract (which is selected and highlighted in blue), Citations (993), References (33), Co-Reads, Similar Papers, Volume Content, Graphics, Metrics, and Export Citation (which is circled in blue). The main content area displays a paper abstract about rotational properties of 21 Sc galaxies. To the right of the abstract is another sidebar with links for FULL TEXT SOURCES (ADS, NED 23, SIMBAD 21) and DATA PRODUCTS (ADS, NED 23, SIMBAD 21). Below these are buttons for "Add paper to library" and "View details".

"This paper is awesome!  
How can I cite it?"

# So many options!

The screenshot illustrates the rich citation options available through the ADS interface. On the left, a search for "author:Rubin" yields a list of results. The first result, a paper by Rubin et al. (1980), is shown with its abstract and citation details. The 'Export Citation' link in the sidebar is highlighted with a blue circle. A large orange arrow points from this section to a detailed view of the citation export interface on the right.

On the right, a modal window titled "Exporting record(s) 1 to 1 (total: 1)" shows the BibTeX export format:

```
@ARTICLE{1980ApJ...238..471R,  
    author = {{(Rubin)}, V.-C. and {Ford}, W.-K., Jr. and {Thonnard}, N.},  
    title = "{Rotational properties of 21 SC galaxies with a large range of luminosities and radii, from NGC 4605 (R=4kpc) to UGC 2885 (R=122kpc).}",  
    journal = {ApJ},  
    keywords = {Astronomical Spectroscopy, Galactic Evolution, Galactic Rotation, Galaxies, Stellar Luminosity, Dynamic Characteristics, Galactic Nuclei, Morphology, Radial Velocity, Radii, Astrophysics},  
    year = 1980,  
    month = jun,  
    volume = {238},  
    pages = {471-487},  
    doi = {10.1086/158003},  
    adsurl = {https://ui.adsabs.harvard.edu/abs/1980ApJ...238..471R},  
    adsnote = {Provided by the SAO/NASA Astrophysics Data System}
```

# So many options!



Demo Time!  
Explore ADS

The screenshot shows the ADS search interface. A large orange arrow points from the left towards the 'Export Citation' button, which is highlighted with a blue circle. Another large orange arrow points from the right towards the export options. The search results for 'Rubin' are displayed, with the first result being a paper by Rubin, V. C.; Ford, W. K., Jr.; Thonnard, N. about the rotational properties of 21 Sc galaxies. The right panel shows the 'Export Citation' section, where the BibTeX format is selected, and the resulting citation code is shown.

QUICK FIELD: Author First Author Abstract Year Fulltext All Search Terms

author:"Rubin"

VIEW  
Abstract  
Citations (993)  
References (33)  
Co-Reads  
Similar Papers  
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Export Citation

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NED (23) SIMBAD (21)

Add paper to library

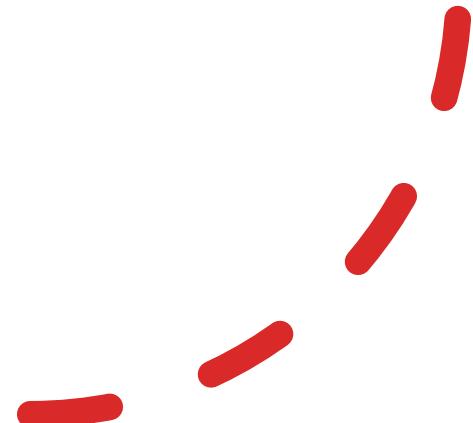
VIEW  
Abstract  
Citations (993)  
References (33)  
Co-Reads  
Similar Papers  
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Graphics  
Metrics  
Export Citation

Exporting record(s) 1 to 1 (total: 1)  
Select Export Format  
BibTeX  
Download to File Copy to Clipboard

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@ARTICLE{1980ApJ...238..471R,  
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doi = {10.1086/158003},  
adsurl = {https://ui.adsabs.harvard.edu/abs/1980ApJ...238..471R},  
adsnote = {Provided by the SAO/NASA Astrophysics Data System}}
```

# Why sign up for an ADS account?

- Keep track of papers you read (and write!)
- Organize papers into libraries and share
- Receive email reminders on topics you care about
- easy bibtex output for overleaf and latex
- It's free!



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Go to [ui.adsabs.harvard.edu](http://ui.adsabs.harvard.edu) to set up an account. You can link your account to an ORCID account too!



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Demo Time!  
ADS Libraries

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# Hot off the press at arXiv

<https://arxiv.org/list/astro-ph/new>

The screenshot shows the arXiv.org homepage for the Astrophysics category. At the top, there's a navigation bar with the Cornell University logo, a search bar, and a link to the Simons Foundation. Below the header, a red banner indicates the date range: "Submissions received from Tue 8 Sep 20 to Wed 9 Sep 20, announced Thu, 10 Sep 20". The main content area is titled "Astrophysics" and "New submissions". It lists two recent papers:

[1] [arXiv:2009.03888 \[pdf, other\]](https://arxiv.org/abs/2009.03888)  
**Simulating gamma-ray production from cosmic rays interacting with the solar atmosphere in the presence of coronal magnetic fields**  
Zhe Li, Kenny C. Y. Ng, Songzhan Chen, Yuncheng Nan, Huihai He  
Subjects: High Energy Astrophysical Phenomena (astro-ph.HE); Solar and Stellar Astrophysics (astro-ph.SR)

Cosmic rays can interact with the solar atmosphere and produce a slew of secondary messengers, making the Sun a bright gamma-ray source in the sky. Detailed observations with Fermi-LAT have shown that these interactions must be strongly affected by solar magnetic fields in order to produce the wide range of observational features, such as high flux and hard spectrum. However, the detailed mechanisms behind these features are still a mystery. In this work, we tackle this problem by performing particle-interaction simulations in the solar atmosphere in the presence of coronal magnetic fields modeled using the potential field source surface (PFSS) model. We find that the low-energy ( $\sim$ GeV) gamma-ray production is significantly enhanced by the coronal magnetic fields, but the enhancement decreases rapidly with energy. The enhancement is directly correlated with the production of gamma rays with large deviation angles relative to the input cosmic-ray direction. We conclude that coronal magnetic fields are essential for correctly modeling solar disk gamma rays below 10GeV, but above that the effect of coronal magnetic fields diminishes. Other magnetic field structures are needed to explain the high-energy disk emission.

[2] [arXiv:2009.03895 \[pdf, other\]](https://arxiv.org/abs/2009.03895)  
**Viscous evolution of a massive disk surrounding stellar-mass black holes in full general relativity**  
Sho Fujibayashi, Masaru Shibata, Shinya Wanajo, Kenta Kiuchi, Koutarou Kyutoku, Yuichiro Sekiguchi  
Comments: 25 pages, 17 figures  
Subjects: High Energy Astrophysical Phenomena (astro-ph.HE)

# Hot off the press at arXiv

<https://arxiv.org/list/astro-ph/new>

Cornell University We gratefully acknowledge support from the Simons Foundation and member institutions.

arXiv.org > astro-ph Search... All fields Search Help | Advanced Search

## Astrophysics

### New submissions

Submissions received from Tue 8 Sep 20 to Wed 9 Sep 20, announced Thu, 10 Sep 20

- New submissions
- Cross-lists
- Replacements

[ total of 114 entries: 1-114 ]  
[ showing up to 2000 entries per page: [fewer](#) | [more](#) ]

#### New submissions for Thu, 10 Sep 20

[1] [arXiv:2009.03888 \[pdf, other\]](#)  
**Simulating gamma-ray production from cosmic rays interacting with the solar atmosphere in the presence of coronal magnetic fields**  
Zhe Li, Kenny C. Y. Ng, Songzhan Chen, Yuncheng Nan, Huihai He  
Subjects: High Energy Astrophysical Phenomena (astro-ph.HE); Solar and Stellar Astrophysics (astro-ph.SR)  
  
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## HOT TIP

There is an arXiv *mini-course* offered in the DADDAA!



## COOL CATCH

Twitter account @astro-ph-leaks scrapes comments in .tex files uploaded to arXiv ... If you upload a manuscript, then don't leave any comments in it that you don't want broadcast to the world ;)



# Phone Apps (e.g. libarxiv)

The image shows two side-by-side screenshots of the libarxiv mobile application on an iPhone. The top status bar on both screens displays the time as 16:41 and signal strength.

**Screenshot 1 (Left): All Categories**

This screen shows a list of academic categories under the heading "All Categories". The categories are:

- Physics
  - Astrophysics (astro-ph)
  - Physics(Condensed Matter) (cond-mat)
  - General Relativity and Quantum Cosmology (gr-qc)
  - High Energy Physics (hep)
  - Mathematical Physics (math-ph)
  - Nonlinear Sciences (nlin)
  - Nuclear Experiment (nucl-ex)
  - Nuclear Theory (nucl-th)
  - Physics (physics)
  - Quantum Physics (quant-ph)
- Mathematics
  - Mathematics (math)
- Computer Science
  - Computer Science (cs)
- Quantitative Biology

At the bottom, there are tabs for "All", "Recent", "Bookmarks", and "Others".

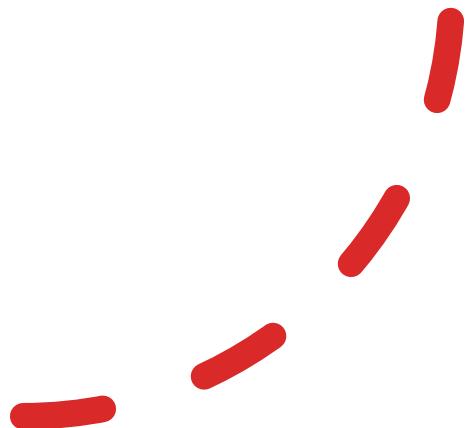
**Screenshot 2 (Right): Cosmology and Nongalactic Astrophysics**

This screen shows a list of research papers under the category "Cosmology and Nongalactic Astrophysics" dated 2020/9/9. The first few papers listed are:

- Stellar cooling, inelastic dark matter, and XENON by Wai-Yee Keung, Danny Marfatia, Po-Yan Tseng
- Newtonian-like gravity with variable  $G$  by Ulio C. Fabris, Tales Gomes, Júnior D. Toniato, Hermano Velten
- Multi-messenger parameter estimation of GW170817: from jet structure to the Hubble constant by Hao Wang, Dimitrios Giannios
- Palatini Higgs and Coleman-Weinberg inflation with non-minimal coupling by Nilay Boston
- Minimum variance estimation of statistical anisotropy via galaxy survey by Maresuke Shiraishi, Teppei Okumura, Kazuyuki Akitsu
- The patch like model of galaxies formation: the virial paradox, core-cusp and missing satellite problems by Ríski, A. Doroshkevich
- A model-independent constraint on the Hubble constant with gravitational waves from the Einstein Telescope by Sixuan Zhang, Shuo Cao, Jia Zhang, Tonghua Liu, Yuting Liu, Shuaibo Geng, Yujie Lian
- On cosmography in the cosmic dark ages: are we still in the dark? by Aritra Banerjee, Ó Colgáin, Misao Sasaki, Mohammad M. Sheikh-Jabbari, Tao Yang
- The XXL survey: XLII. Detection and characterization of the galaxy population of distant galaxy clusters in the XXL-N/VIDEO field: A tale of variety by A. Trudeau, C. Garrel, J. Willis, M. Pierre, F. Gastaldello, L. Chiappetti, S. Ettori, K. Umetsu, C. Adami, N. Adams, R. A. A. Bowler, L. Faccioli,

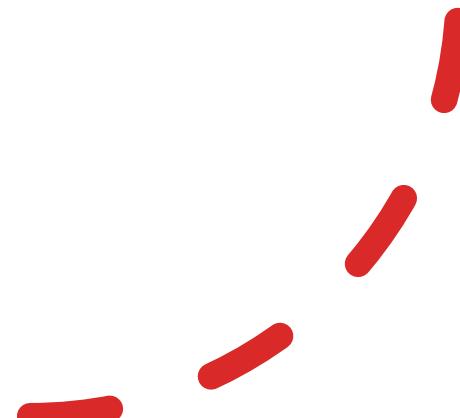
At the bottom, there are tabs for "All", "Recent", "Bookmarks", and "Others".

# Accessing Library Services



# Accessing Library Services

- Gernstein Science Library
  - ask.gerstein@utoronto.ca
  - Curbside pick-up at Robart's Library
- Accessing U of T Library off-campus
  - <https://onesearch.library.utoronto.ca/>
- Google Scholar account
  - Add U of T in Settings > Library Links



# Accessing Library Services

- [Gernstein Science Library](#)
  - [ask.gerstein@utoronto.ca](mailto:ask.gerstein@utoronto.ca)
  - [Curbside pick-up at Robart's Library](#)
- Accessing U of T Library off-campus
  - <https://onesearch.library.utoronto.ca/>
- Google Scholar account
  - Add U of T in Settings > Library Links



Demo Time!  
Google Scholar



# Exercises for this session

- Make a shared google doc with all the tips that have been useful to you
- Set up an overleaf document with AAS, MNRAS, etc. template
- Sign up for an ADS account
  - create a library on a topic that interests you (e.g. black holes, gravitational waves, etc)
  - Set up a weekly e-mail reminder
- ADS exercise
  - pick a paper, get the bibtex code, put into the .bib file on your overleaf, document, and make a citation to the paper in the .tex file.
  - Export library to bibtex file and import in Overleaf
- Make a Trello board for your life

