### Proposal Submission Tool (PST) and Proposal Writing Tips

Speaker: Jesse Bublitz Author: Natalie Butterfield







- Proposals are submitted through the online website known as the Proposal Submission Tool (PST)
  - <u>my.nrao.edu</u> → <u>https://my.nrao.edu/nrao-</u> 2.0/secure/ProposalList.htm
- The PST is used to submit proposals for the GBT, VLA, VLBA (HSA), and GMVA
- Much of the information can vary depending on the telescope selected.





#### 1) Log into my.nrao.edu 2) Click on 'Proposals' tab 3) Click on 'New Proposal'

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Trimester / Seme	ster:	GBT/	21B-326			t d	QB329	Investigating the Star Forming Potential of the Galactic Bar Dust Lanes	Natalie Butterfield	02/01/2021	02/01/2021	SUBMITTED
(ALL \$)		GBT/	21B-052			t d	QG178	MUSTANG Galactic Plane survey: The inner Galaxy continued (2021B)	Adam Ginsburg	01/24/2021	01/31/2021	SUBMITTED
Year:		GBT/	21A-383			t d	QL308	From Head to Tail: Magneto-Kinematic Mapping of an IRDC	CHI YAN LAW	08/03/2020	08/03/2020	SUBMITTED
		GBT/	21A-296			t d	QD177	Measuring 12CO(1-0) emission in the Milky Way's Nuclear Wind	Enrico Di Teodoro	08/01/2020	08/03/2020	SUBMITTED
		GBT/	21A-363		Ż	۹ <b>۵</b>	QK211	Radio Recombination Lines: Constraints on the Fermi Bubble Shell	Dhanesh Krishnarao	07/31/2020	08/03/2020	SUBMITTED
		GBT/	21A-323				QB306	Molecular Inventory of Molecules in the Fermi Bubble Clouds	Natalie Butterfield	07/29/2020	08/03/2020	SUBMITTED
		GBT/	21A-190			i d	QB302	Investigating the Star Forming Potential of the Galactic Bar Dust Lanes	Natalie Butterfield	07/29/2020	08/03/2020	SUBMITTED
		GBT/	21A-348			fi 📥	QM443	Argus Mapping of IRDCs: Probing Physical Processes at the Onset of Star Formation	Lawrence Morgan	07/28/2020	08/03/2020	SUBMITTED
		GBT/	21A-086			t d	QG172	MUSTANG Galactic Plane survey: The inner Galaxy (B sem)	Adam Ginsburg	07/27/2020	08/02/2020	SUBMITTED
		VLA/	21A-281			t d	AC1520	The Three Little Pigs: Tracing Evolutionary Stages in the Galactic Center	Genna Crom	07/16/2020	08/03/2020	SUBMITTED
		GBT/	20B-273			i d	QB288	Investigating the Star Forming Potential of the Galactic Bar Dust Lanes	Natalie Butterfield	02/03/2020	02/03/2020	SUBMITTED
		GBT/	20B-340			۹ <u>۵</u>	QM425	Searching for the Molecular Material Entrained in the Milky Ways Nuclear Wind	Anthony Minter	02/03/2020	02/03/2020	SUBMITTED
		GBT/	20B-276			۹ <u>۵</u>	QD168	Measuring 12CO(1-0) in Clouds Entrained in the Milky Way Nuclear Wind	Enrico Di Teodoro	02/02/2020	02/03/2020	SUBMITTED
		GBT/	20B-319			Fi 🖴	QL296	Shaping the star forming environment in IRDCs: Magnetic field and/or Turbulence?	CHI YAN LAW	02/02/2020	02/03/2020	SUBMITTED
		GBT/	20B-167			t d	QM423	GBT Argus Mapping of IRDCs - Dissecting Turbulence and Magnetic Fields	Lawrence Morgan	02/01/2020	02/03/2020	SUBMITTED
		GBT/	20B-371			∎ 占	QB291	Molecular Inventory of Molecules in the Fermi Bubble Clouds	Natalie Butterfield	01/31/2020	02/03/2020	SUBMITTED
		GBT/	20B-070			۹ <u>۵</u>	QG162	MUSTANG Galactic Plane survey: The inner Galaxy (B sem)	Adam Ginsburg	01/30/2020	02/03/2020	SUBMITTED
		GBT/	19B-355			F 🔒	QD165	Measuring CO(1-0) and NH3 Emission in Two Galactic Center HI Clouds	Enrico Di Teodoro	01/21/2020	01/30/2020	SUBMITTED
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		GBT/	19B-302			۹ <i>۵</i>	QM413	GBT Argus Mapping of IRDCs - Dissecting Turbulence and Magnetic Fields	Lawrence Morgan	09/24/2019	10/01/2019	SUBMITTED
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GBT/20B-319											
GBT/20B-167	Observing Type(s)										
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Proposal Help Desk

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# Parts of a GBT Proposal

- General Information
  - title, abstract, proposal type, Science category, observing type, joint proposal?
- Authors
  - Add authors to the proposal, all authors must be registered users
- Science Justification
  - Upload your science justification (must be < 4 pages, unless large proposal)
- Technical Justification
  - 9 justification questions that need to be addressed
- Sources
  - List your target source(s) information
- Resources
  - Setting up your backend information (receiver, BW, etc)
- Sessions
  - Setting up your observing sessions
  - Pulls information from Sources and Resources sections





#### **Live Demo**

# We will now continue with a live demo $\odot$



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# **Proposal Categories**

**Regular and Large Proposals** 

### Regular

- -0.3 8 GHz (any weather): < 400 hours and  $\leq$  1 year
- -8 18 GHz (good weather): < 200 hours,  $\leq 1$  year
- 18–27.5 / >50 GHz (excellent weather): < 100 hours,  $\leq$  1 year
- Fixed time / monitoring (all weather): < 200 hours, ≤ 1 year</p>

### Large

- -0.3 8 GHz (any weather):  $\geq$  400 hours and > 1 year
- -8 18 GHz (good weather):  $\geq 200$  hours, > 1 year
- 18-27.5 / >50 GHz (excellent weather): ≥ 100 hours, > 1 year
- Fixed time / monitoring (all weather): ≥ 200 hours, > 1 year



# **Proposal Categories**

**Regular and Large Proposals** 

### **Triggered proposals**

- are submitted at the normal proposal deadlines

 Intended for pre-planned observations of transients whose times are not known a priori

- Must include clear, well-justified trigger criteria

### **Director's Discretionary Time (DDT)**

Target of Opportunity: Unexpected phenomena, rapid response
Exploratory Time: Typically a few hours or less, intended for pilot projects taking advantage of a new idea or capability





### **Proposal Categories**

#### Great, Good, and Poor Proposals

- 300-500 proposals reviewed every deadline.
- Few (~10) are obviously great.
- Few (~10-20) are obviously poor.
- All others are good and about equal.

How do you make your proposal standout?





**Science Justification Tips** 

### Do

- Be thorough but concise this is a skill that takes practice to develop!
- Provide a relevant introduction
- Cite relevant literature
- Discuss the potential impact of a successful proposal
- Discuss the potential impact of a null result

### Don't

- Assume that all referees are experts in your domain
- Don't "blind with science" Keep it simple
- Use words when a figure would suffice (and vice versa)



### **Technical Justification Tips**

### Do

- Make sure you are up-to-date on instrumental availability and capabilities
- Ask observatory support staff if you have questions
- Provide all the information that is asked for
- Use observatory provided tools
- Be explicit about any assumptions you are making

### Don't

- Ask for something that is unavailable or impossible
- Ask for an instrumental set up that is not justified by the science
- "Pad" the time request we conduct an independent review





### **Technical Justification Tips**

- If in doubt, contact us!
- Technical justification unlimited space
- What you are using
- How you are using it
- How long you need it
- How you determined those values
- Include Overhead times:
- Pointing/focus every 0.5-2 hours
- AutoOOF every 1-2 hours (above 30 GHz)
- Interscan latencies
- Slew times





#### **Common mistakes**

#### Confusion Limit

 Once you hit it you can't go deeper (unless you have knowledge of emission at higher resolution)

- 1/f noise (Gain variations)
- Receiver dependent
- Relevant when product of BW and tint exceeds certain limits (GBT Memo 282)
- RFI
- Check for known emissions
- Have a plan
- Use the GBT sensitivity calculator
- https://dss.gb.nrao.edu/calculator-ui/war/Calculator\_ui.html
- Use the GBT mapping calculator
- http://www.gb.nrao.edu/~rmaddale/GBT/GBTMappingCalculator.html





### **Proposal Reviews**

#### **Panel Based system**

- Eight different panels
- Broad community representation on panels
- Non experts on panels

#### 0=best and 10=worst

#### Will be given a group

- A: active for one year, expect to complete
- B: one semester, should get most of time
- C: one semester, filler time
- N: not accepted



### Discussion

#### **Questions, comments or others?**

- Welcome, Overview of GBT Science, and GBT Capabilities
- Sensitivity Calculator
- Mapping Calculator
- Proposal Submission Tool
- Tips for a good proposal and additional discussion







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