WRITING OBSERVING PROPOSALS
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Observing proposals

- Goal of writing a proposal

- Parts/components of a proposal

- Be convincing – a good Scientific Justification

- Preparatory work

- Proposal needs to be clear

- Proposal needs to look good

- Learn from failed proposals

Goal of a proposal

- Show you know your stuff
  - You know the field
  - You have, or someone has had, a good idea
  - You know the novelty of what you propose to do
  - You know how to observe with the instrument
  - You know how you will get from data to knowledge
  - You have made good use of previous runs

Components of a proposal

- Title

- Abstract

- Scientific Justification

- Technical details

- Administration

  - Previous runs

    - State of data reduction; publications

Title

- Be specific

- Be attractive, catch the eye of the committee

  - Specific study will address a general question

- The title needs to say it all

- Examples

  - The formation of elliptical galaxies

  - Velocity dispersions of ten elliptical galaxies

  - Dependence of the Fundamental Plane on age in elliptical galaxies

Abstract

- Say the entire justification here, in 10 lines of text.

- Write it at the start of the proposal writing

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- Prepare to REwrite it entirely after the justification

Scientific Justification: function

- **Motivation**

    - Show there's a problem that needs solving

        - Be specific. Speak only of the problem your observations will solve

        - Opening sentence!

- **Show what needs to be done to improve knowledge**

- **Tell what observations you propose do do**

- **Show how the observations will allow progress**

- **Show you control the subject**

    - Choice of telescope, instrument

    - Technical demands of the programme; calibrations; seeing demands, etc.

    - Risks (balanced against potential gains)

- **Be numerical throughout. No arm-waving.**

Scientific Justification structure

Scientific Justification: structure

- Two main parts

  - Present the astrophysical problem

  - Show how you will address the problem

1. Motivation: a specific astrophysical problem

   - Including literature review; your own previous work

2. Proposed observations

   - The telescope/instrument is the best for the job

   - A few technical details on the observations

   - Explain how the data will help solve the problem described above

- Closing sentence

Now go back to the Abstract

- Compose the abstract from an extract of each important sentence in the scientific justification.

- Include a few numbers to show you will do actual measurements.

Technical details

- Explain details of **the sample**

- Show one or two examples (images; spectra)

- Be VERY specific with the ETC calculations

- Visibility; Moon requirements

  - Eg Virgo in bright time in March

- Give the total sum of needed time

  - Including calibrations

- One paragraph on the reduction/analysis

Administration section

- **Previous observing runs**

  - Status (reduction; analysis; publications)

- **Backup programme**

  - What if seeing/transparency are not good

Preparatory work

- **Science definition**

  - What others (and you) have done (read!)

- **Can the observations to deliver the desired result?**

  - S/N; exposure times

  - Spectral resolution needed; instrument setup(s)

  - Defining the sample (!@!)

    - Size of sample; **biases**; match to telescope aperture

- **Takes about one month at least**

  - Long group discussions

Clarity

- If there is room for doubt the panel will use it: don't let them!

- Good simple arguments

  - Avoid "… but…, but…"

- Each sentence one argument. Each paragraph one argument.

- Entire SJ is one argument:

  - Close the circle: 'Here is the problem, here is the solution'

- Typeset details to guide the eye

  - Bold face; underlines to show the structure; to show where the figures are cited in the text {\bf Figure 2}. Highlight the most important sentence (italics).

Good looks

- Impecable English

- Impecable figures

  - Line thickness. Colors catch the eye.

  - Clean, clear, complete figure captions.

    - Panel members do read the figure captions

- Impecable LaTeX

  - Learning LaTeX tricks is a good investment

- Needs 1-2 weeks work

Learning from previous proposals

- Keep a classified record of all previous proposals

- Keep copies of TAC feedback

- Believe the TAC feedback

- Don't get discouraged with failed proposals

  - Submit again

- Understand the TAC constraints

  - Oversubscriptions (RA; moon phase)

  - Aim for easy proposals

- Publish results from previous proposals

A successful proposal

- A simple, well defined problem

- Yields results with a few nights of data

  - Publishable results each semester

- You establish yourself as expert in one field

  - Keep doing the same science for several semesters

- Work with a functional team

  - Mixture of senior, junior

- Shows enthusiasm; YOU KNOW your stuff!