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Cross Section and Parity-Violating Spin Asymmetries of W^{\pm} Boson Production in Polarized $p + p$ Collisions at $\sqrt{s} = 500$ GeV

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Collaborative Writing

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The first step is deciding who the authors are going to be

Ethical considerations of sharing credit with those who contributed to the work

Choice of co-authors may affect the paper's real and perceived quality

Things to consider when selecting co-authors

Importance of the individual's contribution

Writing ability, availability, and interest

Prestige and recognition in the field

Co-authors may not necessarily be *co-writers*

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Generally, have those who contributed most to the success of the project, especially those who have solved major technical problems should be co-authors; lesser contributors are mentioned in the acknowledgments section.

Ideally, authors are named in descending order of their relative contributions, but practices vary widely among research disciplines and groups. Unless the list is obviously alphabetical, most readers will assume that the first author made the major contributions to the work.

Some journals are now requiring a detailed statement of the contributions that each author made to the work being reported. See, for example, the "Contributions" section of "Ultrahigh-resolution optical trap with single-fluorophore sensitivity" (<https://www.nature.com/articles/s41592-020-0774-3>; scroll down to the bottom of the page to see the "Contributions" section).

Who should be authors of this paper?

Xu (postdoc) and Anderson (graduate student) who actually did the work

Allen (engineer) who fixed a critical problem with the apparatus

Bartholomew (professor)—formulated the key idea, told Xu and Anderson what experiment to do, what to look for, and what it meant when they found it

Rodriguez (department head and internationally known theorist)— had several insightful discussions with Bartholomew

Daniels (technician)—prepared and characterized the super-pure thin films

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This example is entirely fictitious.

This paper reports on the fabrication of semiconducting thin films of CdSe to take exploit their tunable opto-electronic properties.

Deciding the lead author is nontrivial; do you make it the most senior person, or the person who contributed the most important idea, or the person who did most of the work? Think about how future authors will cite it. “The fabrication method pioneered by xxxx et al.” will sound ridiculous if you make one of the theorists (Bartholomew or Rodriguez) the lead author. What will people assume if you list the names in alphabetical order?

Rodriguez contributed several possible theoretical explanations to account for the unexpectedly long charge-carrier lifetimes that were observed experimentally.

In addition, Xu stuck Anderson with most of the exacting work, but Xu needs to find a job and Anderson has several years of graduate school left. Rodriguez, who can be petty and vindictive, has an ego the size of an aircraft carrier. And Daniels, the only one of the group who doesn't have a Ph.D., has a permanent chip on his shoulder because he feels under-appreciated and overworked.

One solution to the problem might be multiple publications: Rodriguez can be lead author on a theoretical paper to *Phys. Rev. Lett.*; Anderson can be lead author on a paper to *J. Appl. Phys.*, Daniels can be lead author on a technical publication in *Optoelectronics* or a similar trade journal.

Why have multiple authors?

More than one person did the work

Subject is too large or too complex for one person

Subject requires a variety of viewpoints or expertise

Recognized “experts” add prestige and may assure wider readership

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Complications sometimes arise with multiple authorship

**Opposing judgments about manuscript
length, emphasis, publication venue**

Differing writing styles

Disputes about assignment of credit

Time needed to resolve differences

Dilution of responsibility

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Physicists use one of three approaches

“Plug-and-Play” method

Each author writes a section, which is assembled into a final draft

Exploits individual expertise and knowledge

Inconsistencies in style, tone, tense among sections

“Best ball” method

Everyone writes his own version of the whole article

Group selects the best from each

Inconsistencies in the final version

“Filter” method

Group creates a draft using either of the two methods

One person with “artistic control” writes the final version to ensure consistency of style and form ⁶

Some caveats:

The more people involved

The more time it takes.

The less any one person feels responsible for finishing.

The more coordination and integration is required.

Multiple authors may make it difficult to maintain consistent tone, style, word usage.

Joining individually written segments in one document can result in a disorganized, poorly written mess unless one person has editorial control.

Many authors preparing the entire document is usually least efficient and most time-consuming.

Steps to creating a collaborative paper

Identify the tasks that must be done

**Assign them to specific people
Set firm deadlines**

Establish a routing procedure

**Agree on a protocol for recording comments
as the manuscript circulates**

Collect and circulate comments

Discuss and make changes to the document

**Circulate the final draft for all authors'
approval**

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Team-writing commandments



Name a lead author who has final editorial control

Limit the size of the team

Strive for a mix of “thinkers” and “doers”

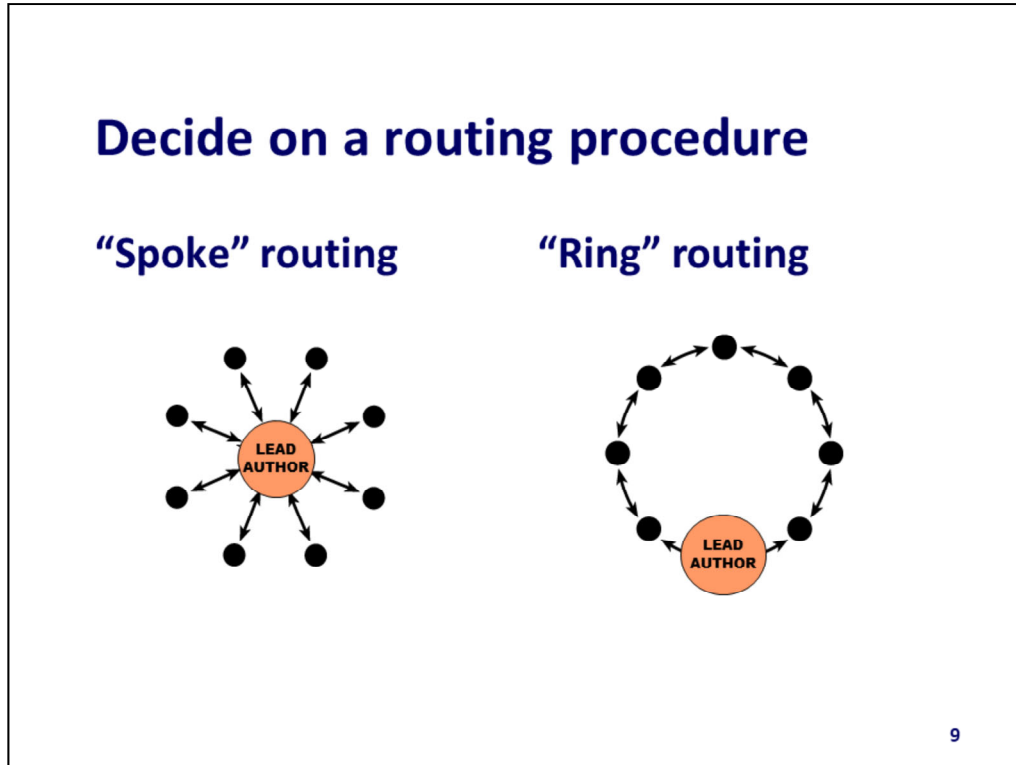
Decide who has veto power

Discuss upfront how to resolve conflicts

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Limit the size of the team—eliminate upfront members who cannot, or will not, contribute.

Consider thanking some contributors in the “acknowledgments” section instead of making them co-authors.



“Spoke” routing

Document goes to all members of the group at the same time.
 Members make their comments and return the document to the originator.
 Faster turnaround.
 Someone will have to incorporate all the comments into a single document for the next round.

“Ring” routing

- Document circulates to each member of the group successively.
- Each member revises the file, saves it under a new name, and passes it on to the next person in the group.
- File naming protocol very important.
- Considerably slower, as each person must wait for the ones earlier in the chain to complete their work.
- As the document moves, authors at the end of the chain may not have anything left to add to the document and will start commenting on the comments.

Decide on file naming

Ensure that someone retains an original of each version of the file

Ensure that the most recent version of the file is what is circulating

If team members are going to make revisions to the original document and save a new version, devise a file-naming strategy so that the changes can be tracked (be aware that some operating systems truncate file names)

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Some operating systems (Windows 3.x) will open files with long file names but then will truncate them to the first six characters, followed by a tilde and a number. If you've devised a file naming strategy that includes important information in longer file names, that information may be lost if someone with an incompatible system opens the file.

Decide on how you will comment

Commenting via email

Someone in the group
will have to collect and
distill individual
comments

Inserting comments

directly into the text
Original document may
become very hard to
read

Local Electronic Phenomena: From Solids to Molecules

~~The original idea of~~ Binnig and Rohrer's original idea was actually not to build a microscope, but rather to develop a technique for ~~performing spectroscopy~~ spectroscopic measurements with of electron tunneling on the nanometer scale using a positionable electrode. ~~[add ref. cme]~~ Tunneling spectroscopy ~~has been~~ one of the traditional ~~tools methods~~ of solid-state physics ~~has been an important tool~~ since studies of planar metal-oxide tunnel junctions in the 1960's partially confirmed the ~~Barden-Cooper-Schrieffer~~ ~~[according to the APS Style Guide, BCS does not have to be defined. Nature may not concur [cme]]~~ theory of superconductivity for conventional metals. But ~~similar to~~like other spectroscopic techniques, planar tunneling provides only spatially averaged information and can not directly ~~access measure~~ spatial variations of electronic phenomena in solids. The STM ~~invention~~, however, ~~has added the a new-critical new~~ component—the ability to perform spatially resolved spectroscopy on the atomic scale. As recent work demonstrates, the STM's combination of image and spectroscopy ~~with the STM, is providing provides~~ new perspectives of electronic phenomena, such as ~~such as~~ superconductivity and magnetism, which up to now have been ~~mostly examined primarily characterized by techniques with-relying on~~ macroscopically average ~~techniques~~. In its now ~~more-more~~ established role as a spectroscopic tool, ~~the~~ STM spectroscopy is finding applications in a wide range of systems—from superconductors to nanostructures and single molecules.

To recap:

Have clearly defined roles for each author

**Name one person who has overall
responsibility for the final product**

Establish (and enforce) deadlines

**Figure out how you're going to make
comments and track versions ahead of time**



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Notes: