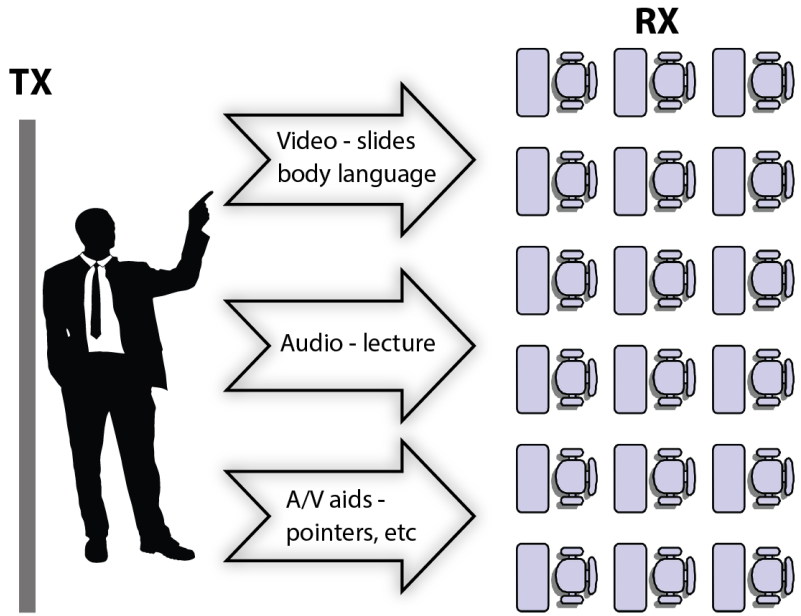
SCIENTIFIC & TECHNICAL WRITING

ORAL AND POSTER PRESENTATIONS

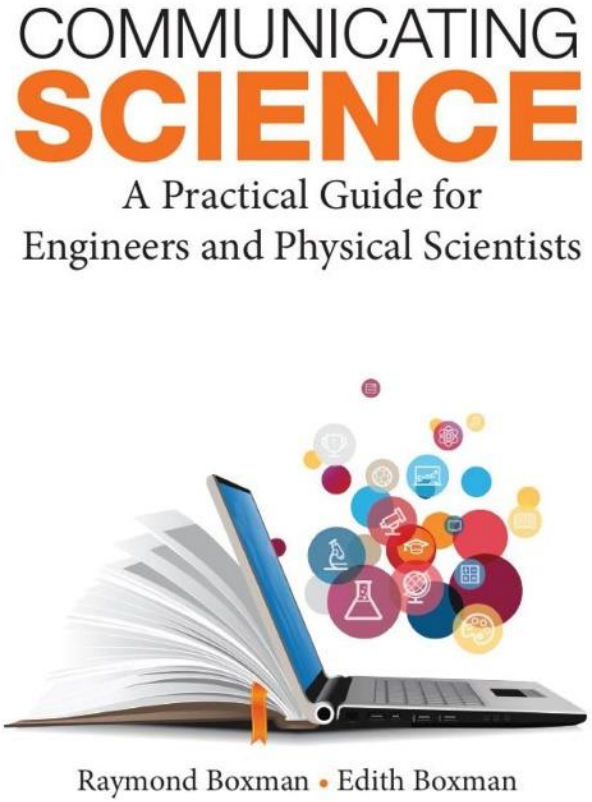
how to make the most
of 15 minutes!



Prof. Reuven Boxman

Tel Aviv University

Reference - Ch. 4 of:



http://www.worldscientific.com/worldscibooks/10.1142/10145

THE SHORT LECTURE

- The CHALLENGE:

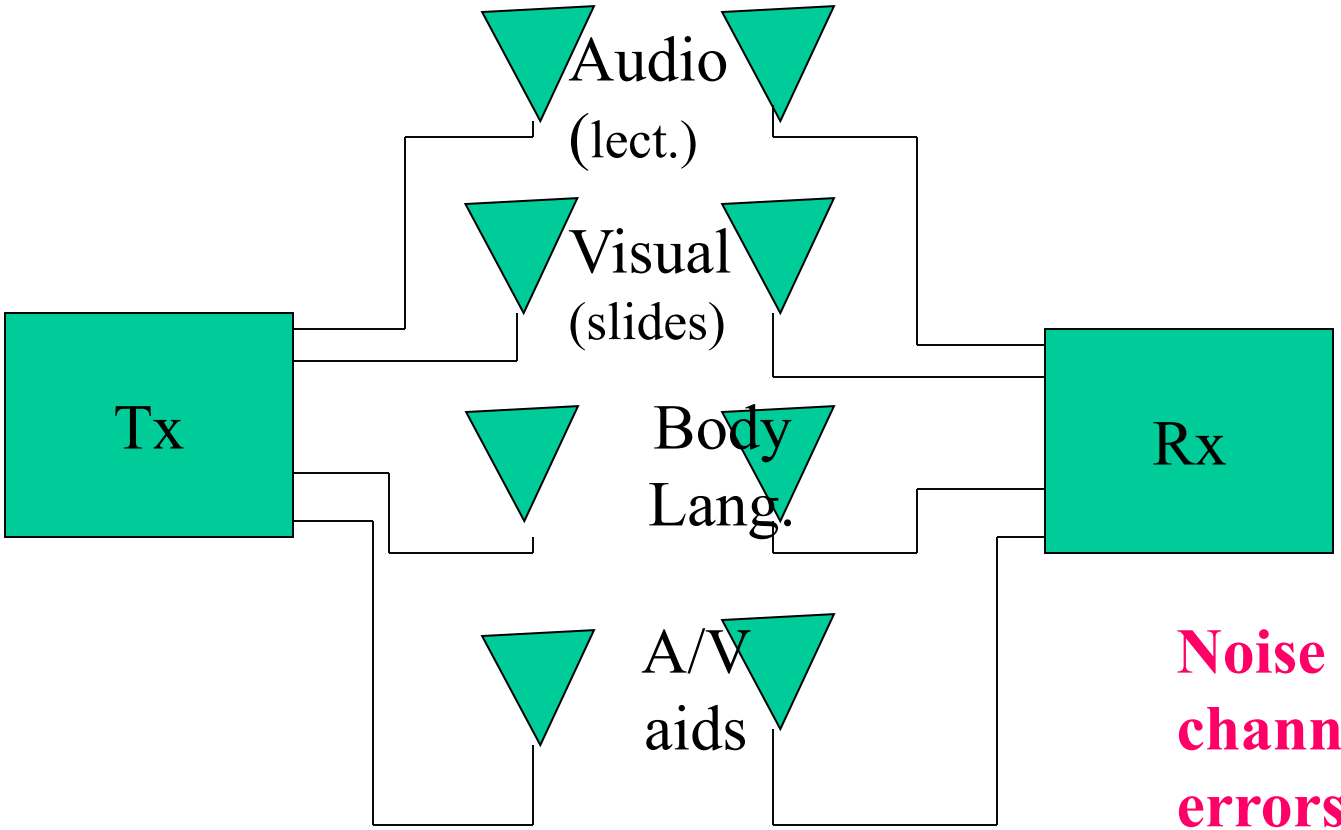
  Allotted very short time
  (~15 minutes at conference,
  40 minutes for department seminar)

  to present several years work!

OBJECTIVE OF LECTURES AND POSTERS

- TRANSMIT INFORMATION
  - Share with the world the findings of your research
- IMPRESS THE AUDIENCE
  - with the quality of the research
  - with the quality of the researcher
  - and of the researcher's institution

Multi-media, Multi-channel Communications



Noise in any channel increases errors!

Objective of this lecture:

- To give you methods and guidelines for presenting good lectures and posters

Outline

1. Lecture Preparation
2. Lecture Presentation
3. Posters
4. Conference Conduct

PREPARATION

- Carefully choose material, **according to time available**
- Prepare graphics
- Rehearse / time presentation (including in front of colleagues!)
- Cut the excess material so you stay on time!

LECTURE STRUCTURE

1. **INTRODUCTION**

- 10-20% of time allotted
- Bring audience up to speed (depends on audience!) – explain the overall subject matter
- Tell them what to expect (tell them what you are going to tell them!)

LECTURE STRUCTURE

continued

2. **BODY**

- Abbreviate methodology, unless novel
- Concentrate on results, and their significance

3. **SUMMARY AND CONCLUSIONS**

- Recap what you told them
- Focus on 3 points you would like the audience to remember!

MOST COMMON PROBLEMS

- **Too much material**.
- Too much detail.
- Illegible graphics
  (too crowded, too small, *too much detail*)
- Insufficient rehearsal
- Poor delivery technique:
  - Verbal (talk too fast, drop tone of voice, etc.)
  - Visual (fumbling with slides, occlude projector, laser dazzle, back to audience)

GRAPHICS

- Always display something when you speak.
- Rule of thumb -- ~ 1 slide per minute
- Insure that everything can be read and understood at back of room
- Minimum font – 14 points. Title - 48 point
- Use color and effects, but sparingly – e.g. for different curves on graph, parts of apparatus
- Text slides – Key words only, no complete sentences
- Graphics – always point out and explain what you want the audience to see (blind man's rule)

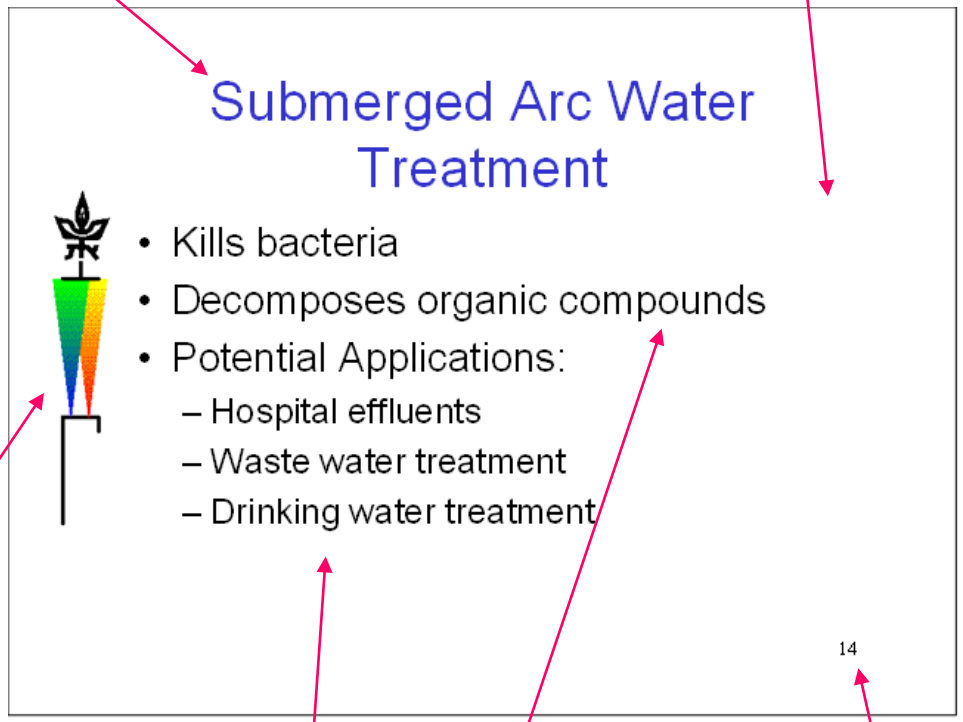
GRAPHICS continued

- Use slide presentation program
  - e.g. MS Power Point
  - Use their default layouts, formatting, and font sizes – insures proper spacing.
- Don’t crowd your slides – leave space between items
- No work-shop drawings
- No slides of only equations
- Never photocopy from books without magnification and emphasis
- Title each slide
- Number your slides (small font, in corner)
- Last slide – interesting graphic or summary
  - Not just “thank you”.

Sample Lecture Text Slide

Slide title. 44 pt, contrasting dark color to body text

White background



Logo (optional). On side or bottom

Body text. No complete sentences – only bullet points. Default formatting. Here main text 32 pt, sub-text 28 pt.

Slide number in corner

Sample Lecture Graphic Slide

Slide title. 44 pt, dark color

White background

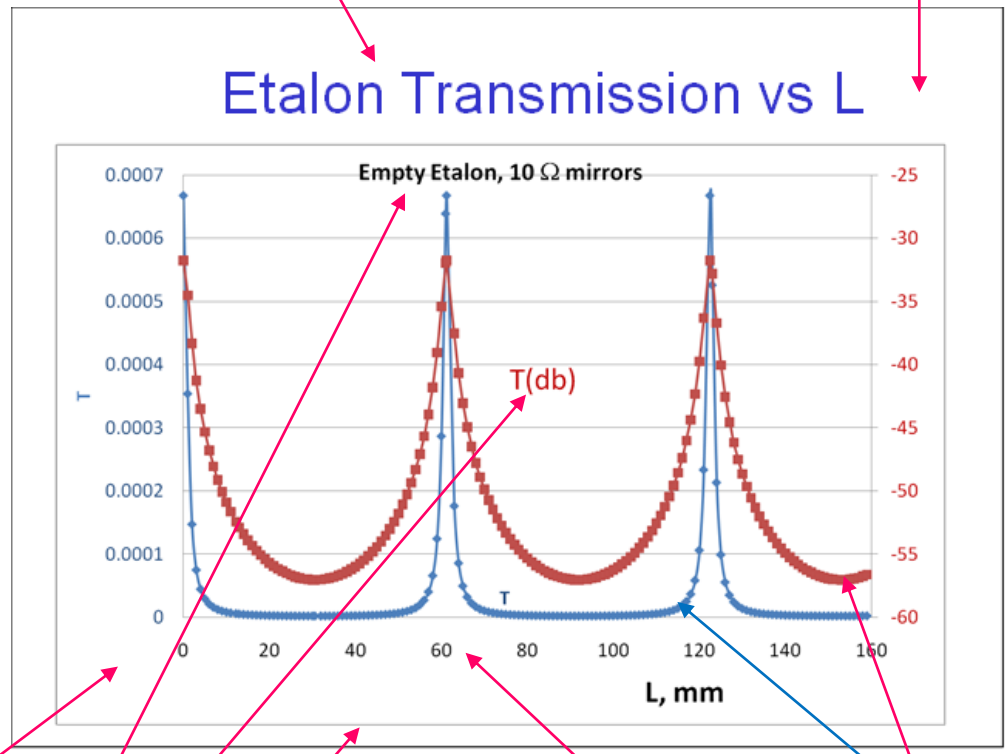


Figure – Graph

Enlarge to fill as much of slide as possible (even at expense of logo and page number)

Head's up display

Contrasting dark colors for different curves

All symbols sufficiently large (minimum 14 pt)

PRESENTATION

- **REHEARSE! REHEARSE! REHEARSE!**
  - In front of colleagues – get their feedback
  - Use stop watch – check your timing
  - If you are over time – don't talk fast! Cut material
- Business attire
  - men: suit and tie
  - women: conservative but feminine

PRESENTATION continued

- Load file/connect computer before session begins
- Use the mouse for pointing:
  - Suggestion – keep cursor visible
    - Right click – pointer options – arrow options - visible
  - Laser pointers are annoying
    - Dancing, flickering dot
    - Back to audience
    - Don’t use them!

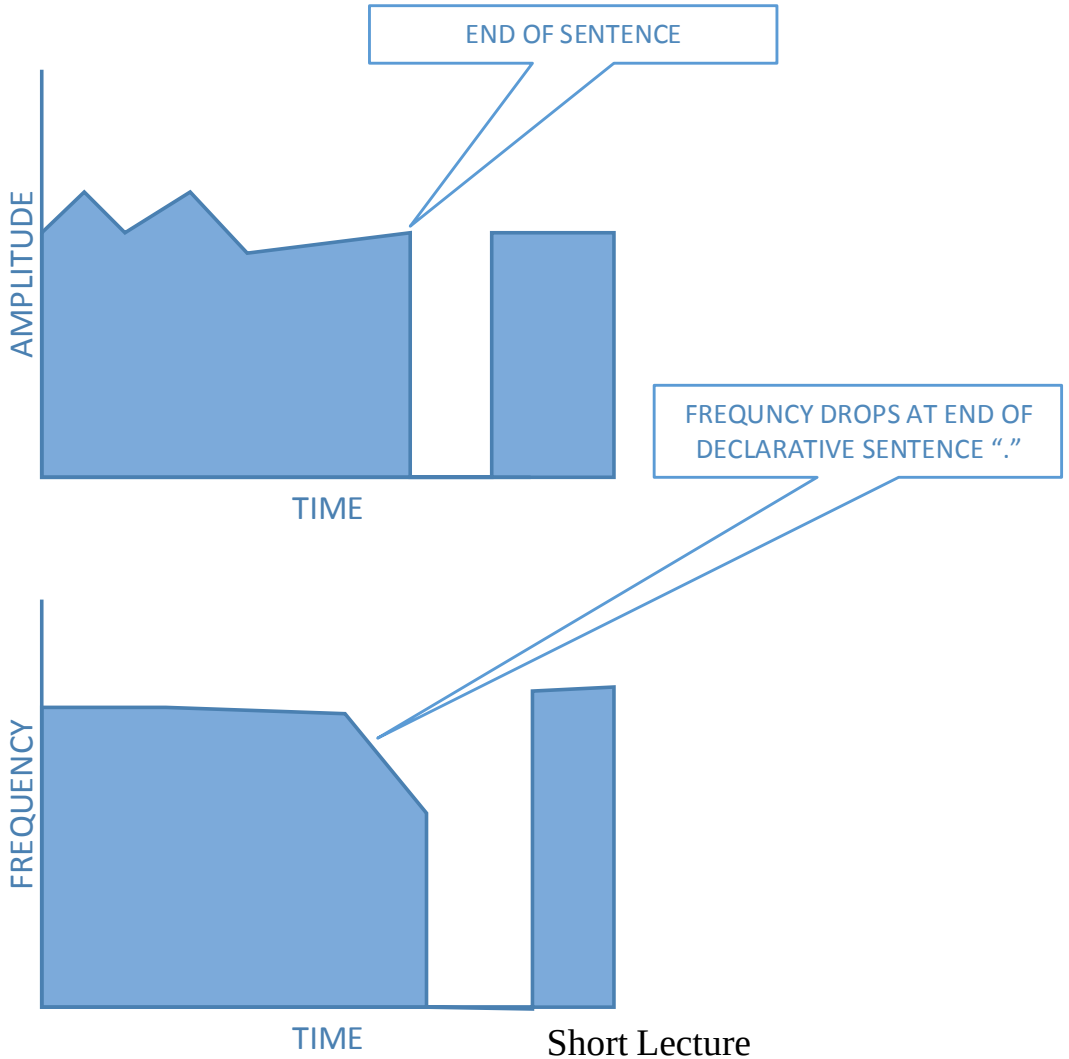
Cursor vs Laser Pointer

Issue	Laser Pointer	Cursor
Eye contact	Presenter must turn away from the audience, cannot keep eye contact.	Presenter always faces audience – glances down at lectern computer screen when needed
Steadiness	Laser beam constantly darting around – distracting	Cursor can be placed accurately and steadily on the desired feature
Speckle	Together with darting about, laser speckle is annoying and distracting	No speckle
Multiple screens in large auditorium	Speaker can only point at one screen at a time with laser pointer. Participants far from that screen are disadvantaged	Cursor is simultaneously projected on all of the screen
Availability	Pointer can “walk away”	Mouse or other pointing device always connected to computer

PRESENTATION continued

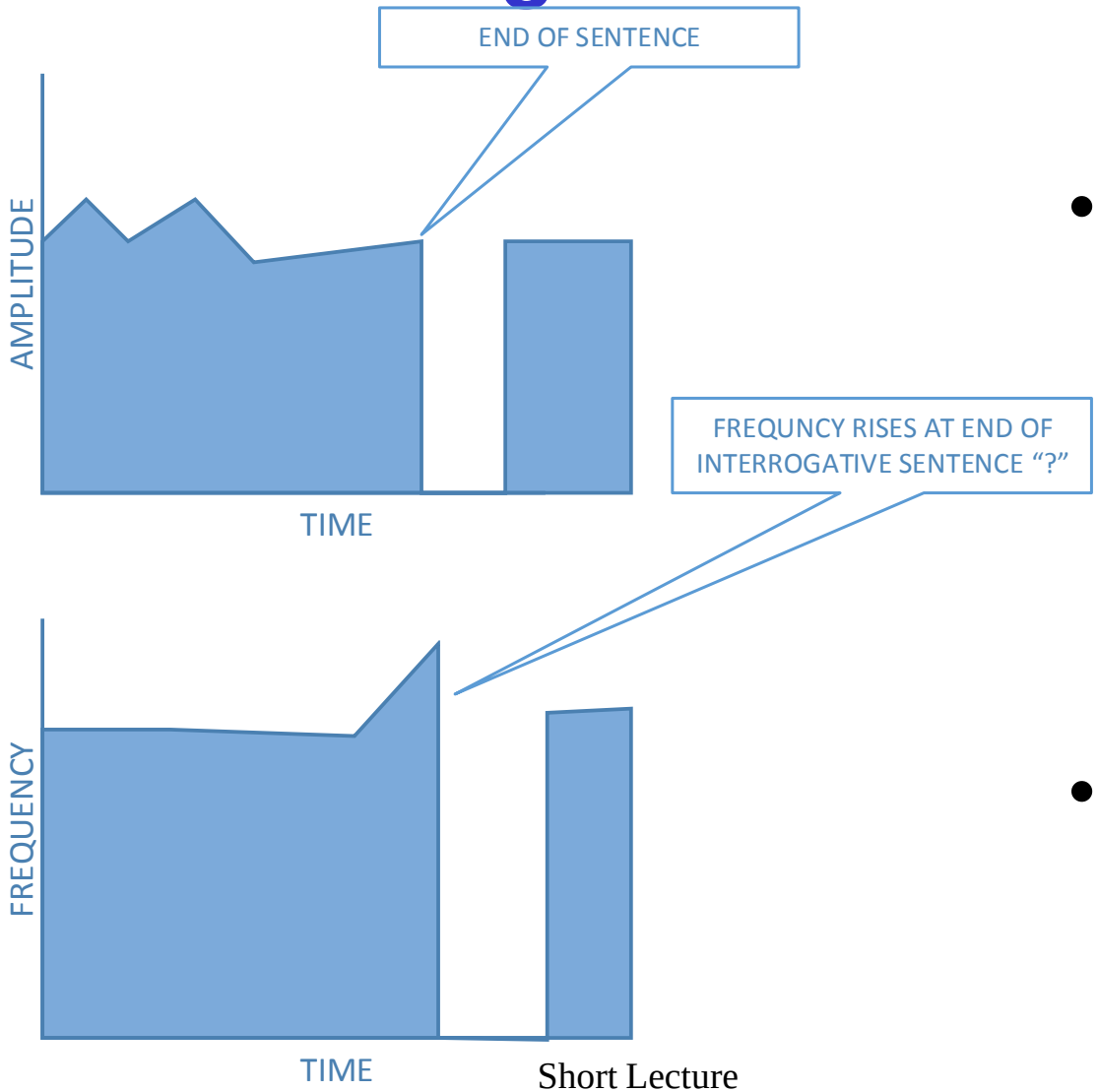
- Speak to audience, don’t read your lecture!
- Speak slowly and clearly
- Use simple words
- Maintain eye contact with audience
- Point to relevant items on graphics
- Don’t drop your voice at the end of sentences

VOICE CONTROL:
end of declarative sentence “.”



- Maintain amplitude
- Drop pitch

VOICE CONTROL:
end of interrogative sentence “?”



- Maintain amplitude
- Raise pitch

THE POSTER

– **USE**

- Backdrop for one-on-one conversations with truly interested colleagues
- Walk-by curious

– **STRUCTURE**

- Similar to lecture

POSTER GRAPHICS

- **NEVER post copy of paper!**
  - easier to read paper in proceedings
- Guidelines from lecture generally applicable here, however:
  - Can show equations, if you need them to discuss with experts
  - Can have more detail, if you are there to explain
  - Can also use 3-D objects, samples, etc.

Sample Poster

Large title: 77 pt

Bullet point abstract

Main headings 44 pt

Text in bullet points. No complete sentences

Light or white background

Conclusions – in bullet points

ELECTRICAL CHARACTERISTICS OF A PLASMA EXCITED BY AN AZIMUTHAL MICROWAVE FIELD

D. Tsimanis, and R.L. Boxman

Electrical Discharge and Plasma Laboratory, School of Electrical Engineering, Faculty of Engineering Tel Aviv University, P.O.B. 39040, Tel Aviv 69978, Israel.

Abstract

- Develop method to microwave excite gas discharge lamp and minimize envelope heating
- Use circular TE_{01} mode
- Principle demonstrated with low pressure Ar fill. Practical lamp needs efficient gas fill and impedance matching

Background

- Discharge lamp - most used outdoor light source
- Typical lamps suffer from electrode erosion & include Hg vapor
- Existing Microwave Electrodeless Discharge Lamps (MEDL) require heat distribution mechanism, e.g. bulb rotation

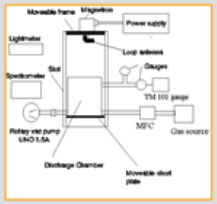
Objectives

- Develop method to excite circular TE_{01} mode
- Simulate TE_{01} mode excitation
- Excite an argon plasma using TE_{01} mode.
- Determine the luminous power of the discharge, & its dependence on pressure
- Measure radiated spectrum
- Determine power balance

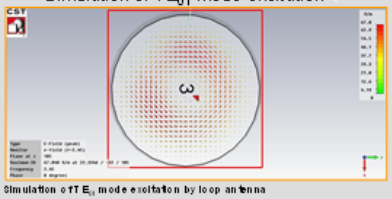
Methodology

- Small loop antenna to excite circular TE_{01} mode
- CST simulation
- Visualize mode with array of thermal papers
- Illuminance measurements: Pressures of 3.3 to 9.3 mbar
- Illuminance measurements: 6 different locations across the slot
- Illuminance measurements: Illuminance as a function of axial position z.
- Temperature measured in 17 different points of discharge chamber.

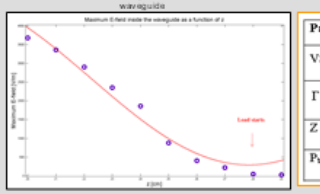
Experimental setup (1)



Simulation of TE_{01} mode excitation



Simulation of TE_{01} mode excitation by loop antenna

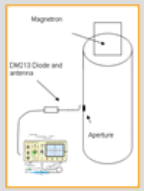


Maximum electric field inside the waveguide as a function of z

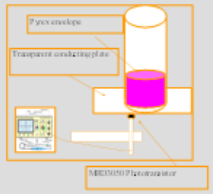
Parameter	Value
VSWR	17.69
Γ	$0.84e^{j0.33\pi}$
Z	$(128+1113j)\ \Omega$
P_R	149 W

Determined plasma parameters

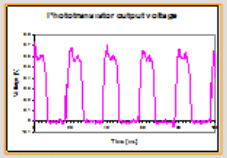
Experimental setup (2)



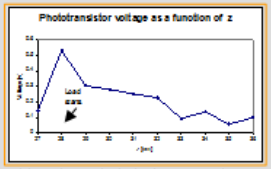
Experimental setup (3)



Phototransistor Output



Photolands for output voltage as a function of time



Photolands for circuit output voltage as a function of z

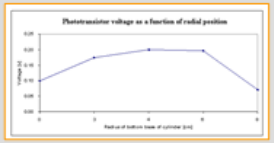


Photo transistor circuit output voltage as a function of radial position

Conclusions

- Power converted to luminous power - 12 W
- Power dissipated in discharge chamber - 105 W
- Illuminance increased with pressure
  - because of increased electron collision frequency
- Need to match impedance, use efficient gas fill

POSTER CONDUCT

- Be present at poster when required
- Use the poster as a backdrop to discuss your work with interested parties
- Actively engage visitors
  - Offer to give them brief explanation
  - Have a 2-3 minute oral summary pre-prepared
  - Continue to discuss with really interested visitors

CONFERENCE PARTICIPATION

PURPOSE

- Objective of conference – meet your colleagues for informal discussion
  - Lectures, etc., merely structures to facilitate this
  - Most important session: **the coffee break!**
- Make contacts for jobs, future cooperation and collaboration
- Learn what isn't in the formal papers and lectures
  - Black magic
  - Doubts
  - New directions

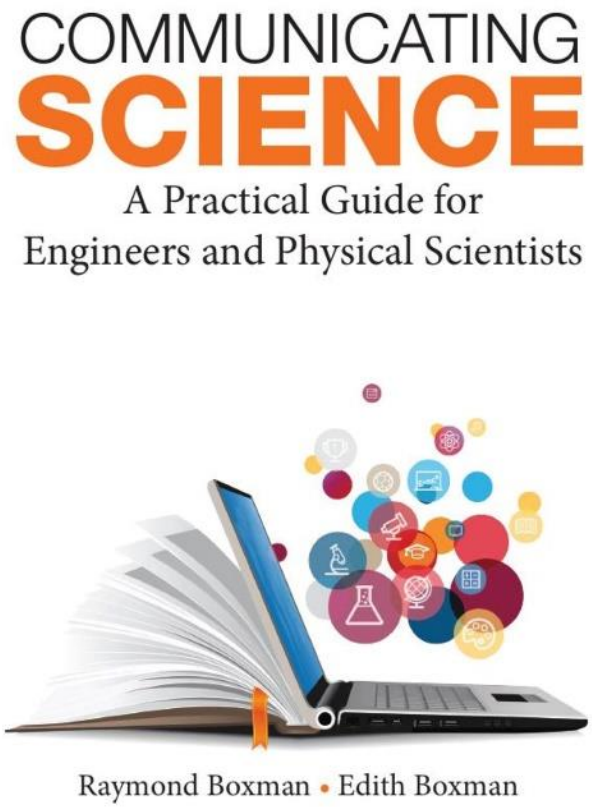
CONFERENCE CONDUCT

- If you can't attend, notify the conference organizers as much in advance as possible
- Introduce yourself to colleagues you would like to meet.
  - But don't be a pest!
- During discussion period after lecture
  - DO ask questions.
  - DON'T monopolize discussion, or carry on dialogue with lecturer
- Use coffee breaks, meals, evenings, etc. to meet your colleagues whom you don't normally see
  - Avoid hanging around with your clique!
- Business cards

SUMMARY

- Transmit information in the way best suited for the audience
  - Remember their limitations
- Clear graphics
- Speak slow, loud
- Stay on time
  - Cut Material
  - Rehearse!
- Make a good impression for
  - Yourself
  - Your institution

THANK YOUR FOR YOUR ATTENTION.
Want more? Read Ch. 4 of:



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or “google” boxman communicating science