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Scientific Poster

SOS poster

1

Examples

- https://inchemistry.acs.org/college-life/research-poster-infographic.html
- https://www.animateyour.science/post/best-examples-of-scientific-posters
- https://piktochart.com/tips/scientific-poster-examples
- https://venngage.com/blog/scientific-poster-examples/
- https://ur.umbc.edu/poster-presentation-examples/
- https://www.utexas.edu/ugs/our/poster/samples

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SOS Poster

Avoid

- Paper on a poster format
- Too much text
  - Only the essentials
  - Remove unnecessary details
- Excess of color / combinations
- Intense background

Ideal

- Be seductive
- Creative communication of research
- Clear structure (flow) of information
- Images and charts (visuals) instead of text
- Initiate communication
- Handouts can help

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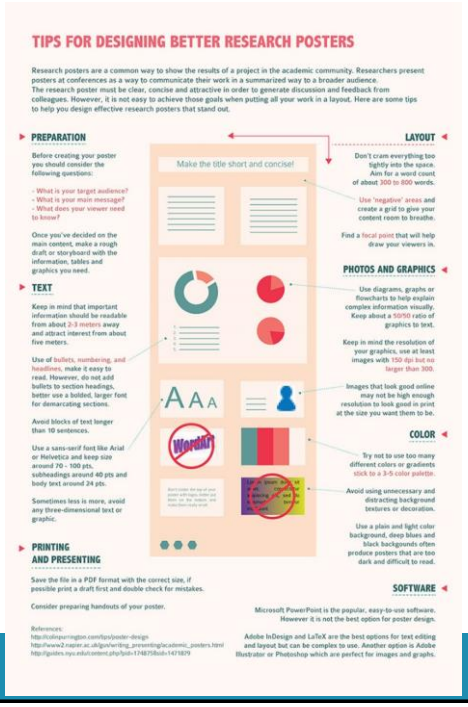
Elsevier tips



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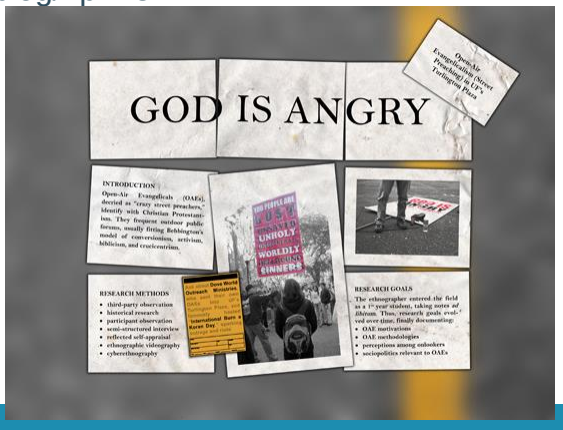
A poster is not a paper

5

A poster is not a slide set

6

- A good example
  http://ashkuff.com/blog/?p=18



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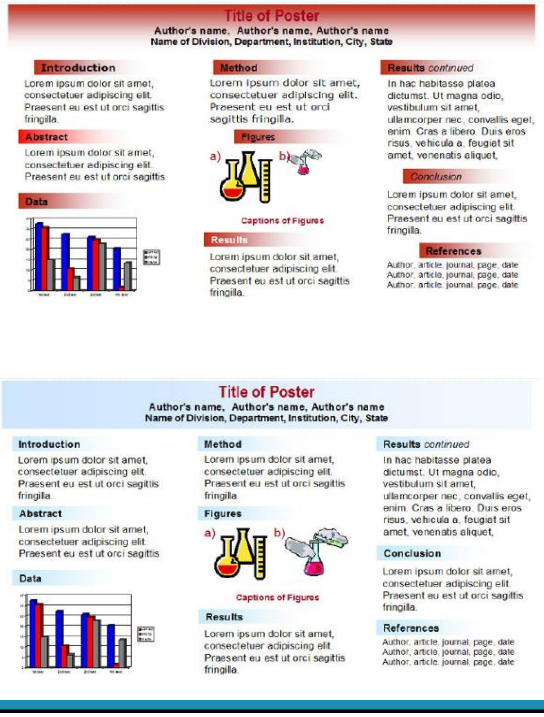

- Align
- Uniform
- Balance

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- Title too small
- Different text boxes do not form a unit
- Contrast between dark background and white text box is too intense
- Left part: too much text

- Clear title
- Large text box forms a unity
- Images aligned
- Pale colors are more eye friendly
- Balanced by spreading the image and the chart

http://www.fes.uwaterloo.ca/computing/help/posterdesign/PosterCreation.pdf

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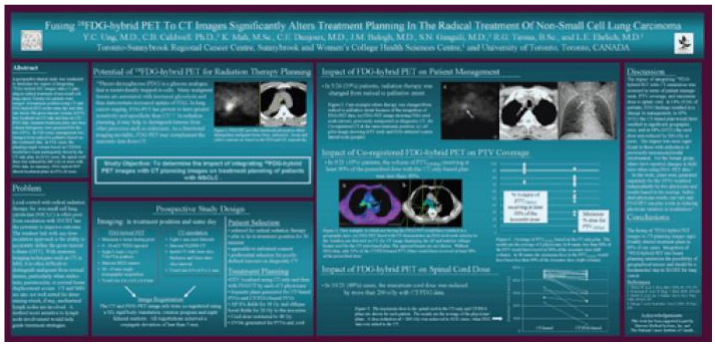
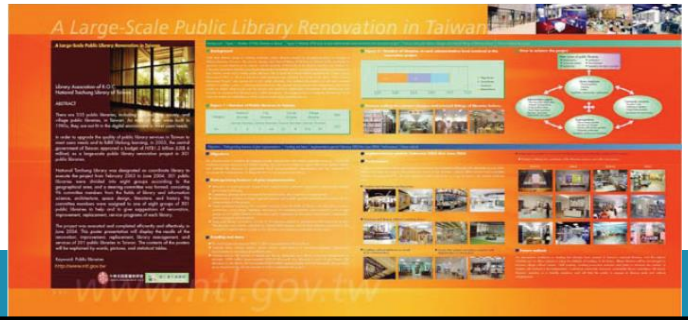
- Trop is Teveel
- exhausting



- Contrast
- Different backgrounds distract



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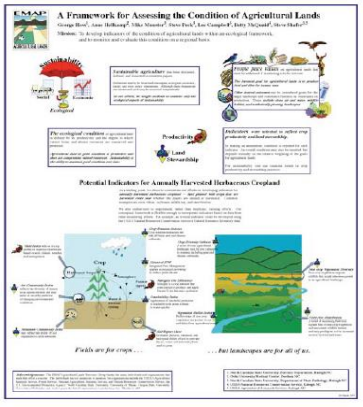
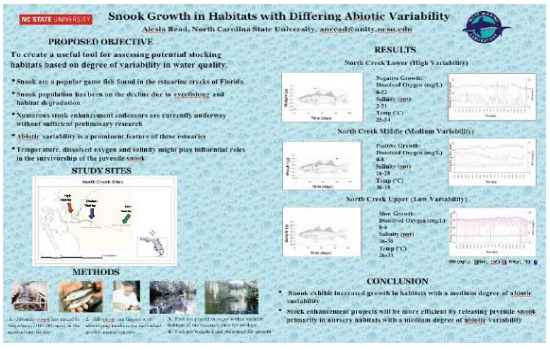
- Where to start?



- Careful with standard PowerPoint background



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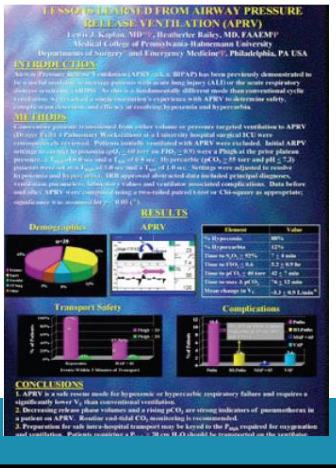
- Dark background
- Contrast
- Gradient



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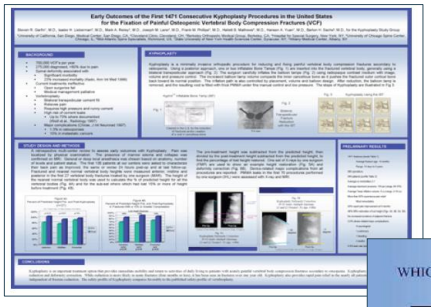

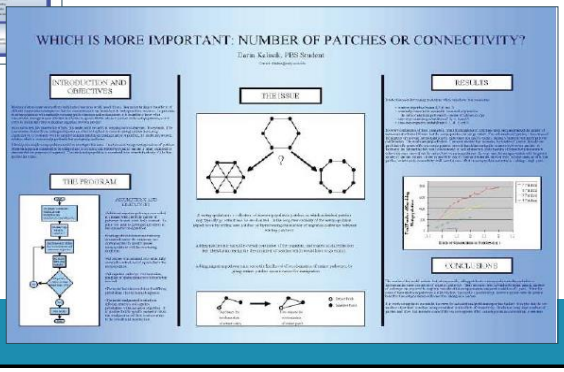

- Use gradients sparingly

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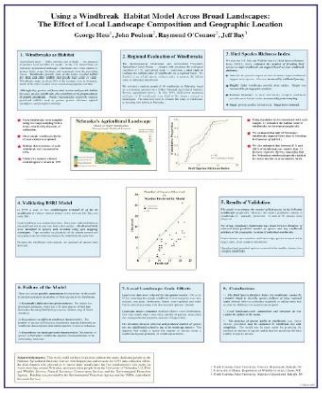
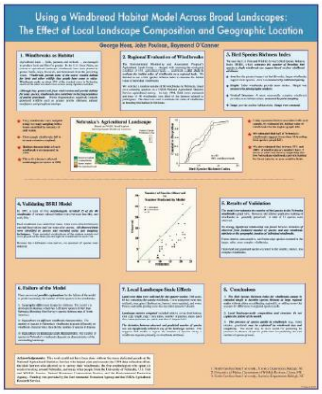
- Color can help or not?





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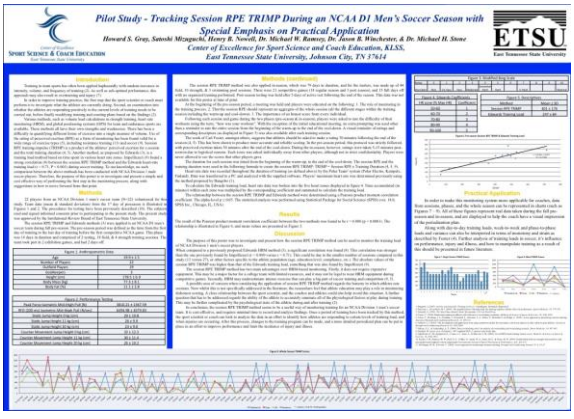
15



pursuitofperformance.blogspot.be/2010/12/scientific-poster-pilot-study-tracking.html

blogs.warwick.ac.uk/researchexchange/entry/poster_designing_a/

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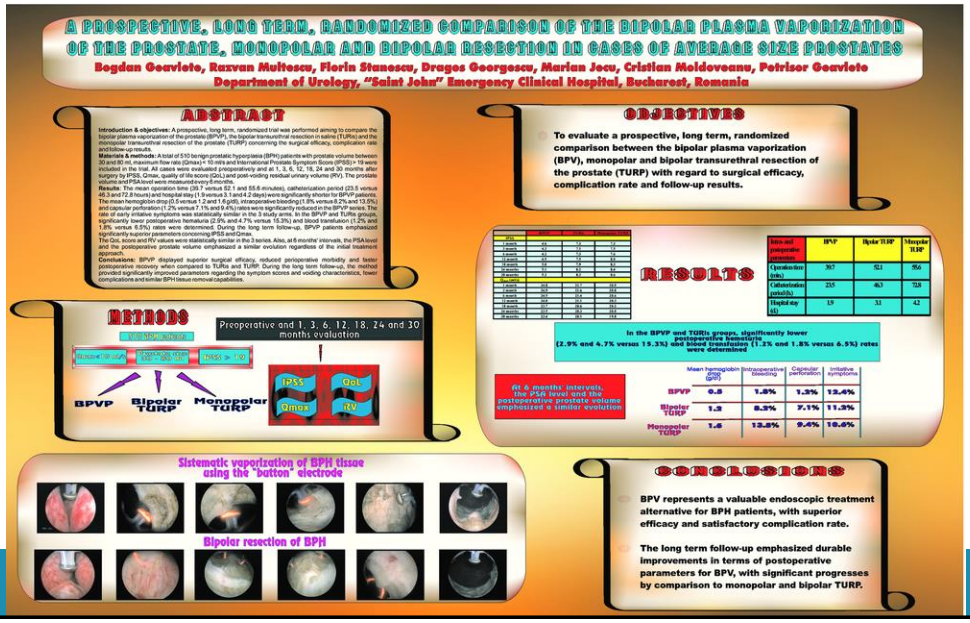

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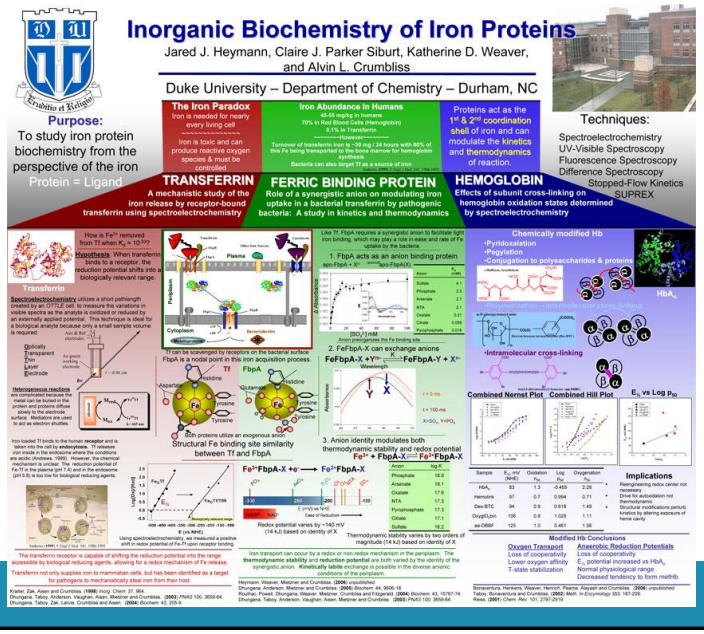
Inorganic Biochemistry of Iron Proteins
Jared J. Heymann, Claire J. Parker Siburt, Katherine D. Weaver, and Alvin L. Crumbliss
Duke University – Department of Chemistry – Durham, NC
Purpose:
To study iron protein biochemistry from the perspective of the iron
Protein = Ligand
The Iron Paradox
Iron Abundance in Humans
Proteins act as the 1st & 2nd coordination shell of iron and can modulate the kinetics and thermodynamics of reaction.
Techniques:
Spectroelectrochemistry
UV-Visible Spectroscopy
Fluorescence Spectroscopy
Difference Spectroscopy
Stopped-Flow Kinetics
SUPREX
TRANSFERRIN
A mechanistic study of the iron release by receptor-bound transferrin using spectroelectrochemistry
FERRIC BINDING PROTEIN
Role of a synergistic anion on modulating iron uptake in a bacterial transferrin by pathogenic bacteria: A study in kinetics and thermodynamics
HEMOGLOBIN
Effects of subunit cross-linking on hemoglobin oxidation states determined by spectroelectrochemistry
Chemically modified Hb
Implications
Modified Hb Conclusions
Oxygen Transport
Anaerobic Reduction Potentials
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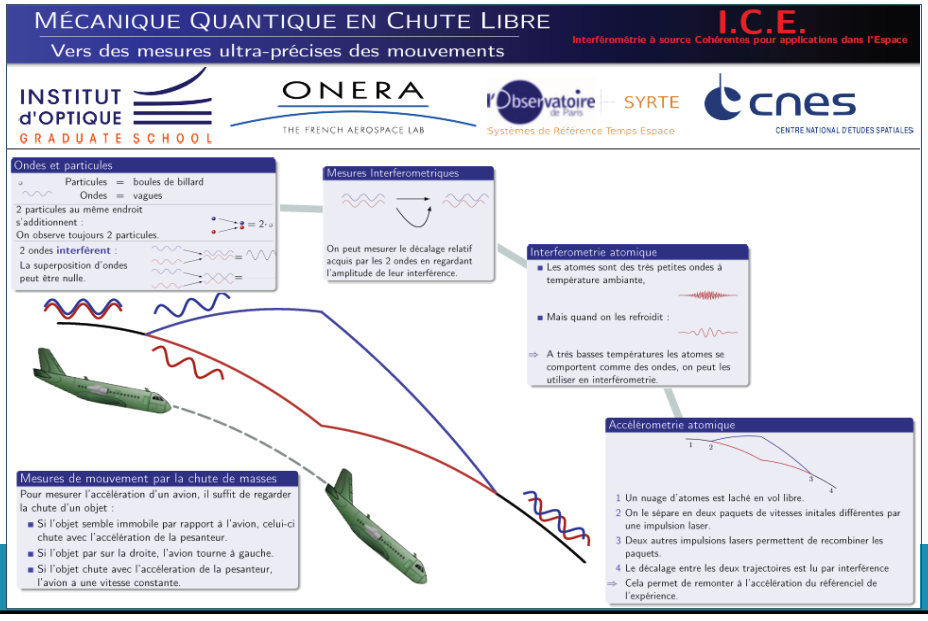
MÉCANIQUE QUANTIQUE EN CHUTE LIBRE
Vers des mesures ultra-précises des mouvements
I.C.E.
Interférométrie à source Cohérentes pour applications dans l'Espace
INSTITUT d'OPTIQUE GRADUATE SCHOOL
ONERA THE FRENCH AEROSPACE LAB
l'Observatoire de Paris SYRTE
Systèmes de Référence Temps Espace
cnes CENTRE NATIONAL D'ETUDES SPATIALES
Ondes et particules
Particules = boules de billard
Ondes = vagues
2 particules au même endroit s'additionnent :
On observe toujours 2 particules.
2 ondes interférent :
La superposition d'ondes peut être nulle.
Mesures Interferometriques
On peut mesurer le décalage relatif acquis par les 2 ondes en regardant l'amplitude de leur interference.
Interferometrie atomique
Les atomes sont des très petites ondes à température ambiante,
Mais quand on les refroidit :
⇒ A très basses températures les atomes se comportent comme des ondes, on peut les utiliser en interférometrie.
Accélérometrie atomique
1 Un nuage d'atomes est laché en vol libre.
2 On le sépare en deux paquets de vitesses initales différentes par une impulsion laser.
3 Deux autres impulsions lasers permettent de recombiner les paquets.
4 Le décalage entre les deux trajectoires est lu par interférence
⇒ Cela permet de remonter à l'accélération du référenciel de l'expérience.
Mesures de mouvement par la chute de masses
Pour mesurer l'accélération d'un avion, il suffit de regarder la chute d'un objet :
Si l'objet semble immobile par rapport à l'avion, celui-ci chute avec l'accélération de la pesanteur.
Si l'objet par sur la droite, l'avion tourne à gauche.
Si l'objet chute avec l'accélération de la pesanteur, l'avion a une vitesse constante.
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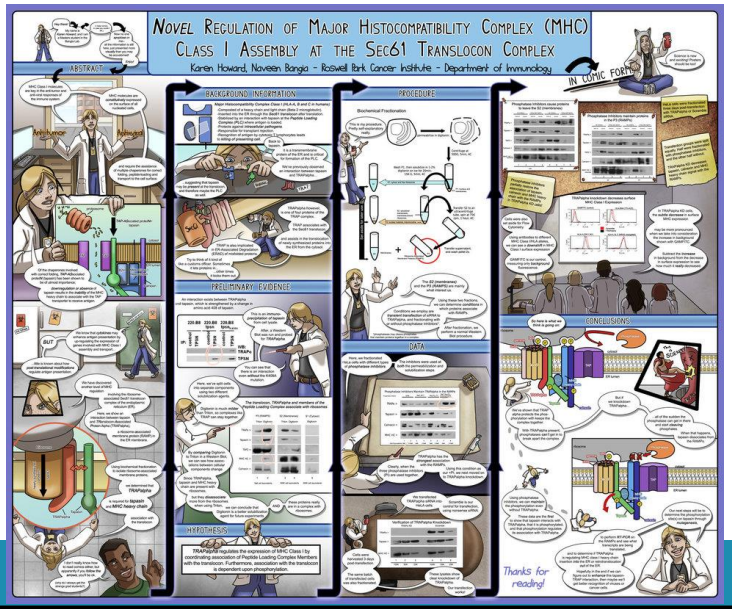

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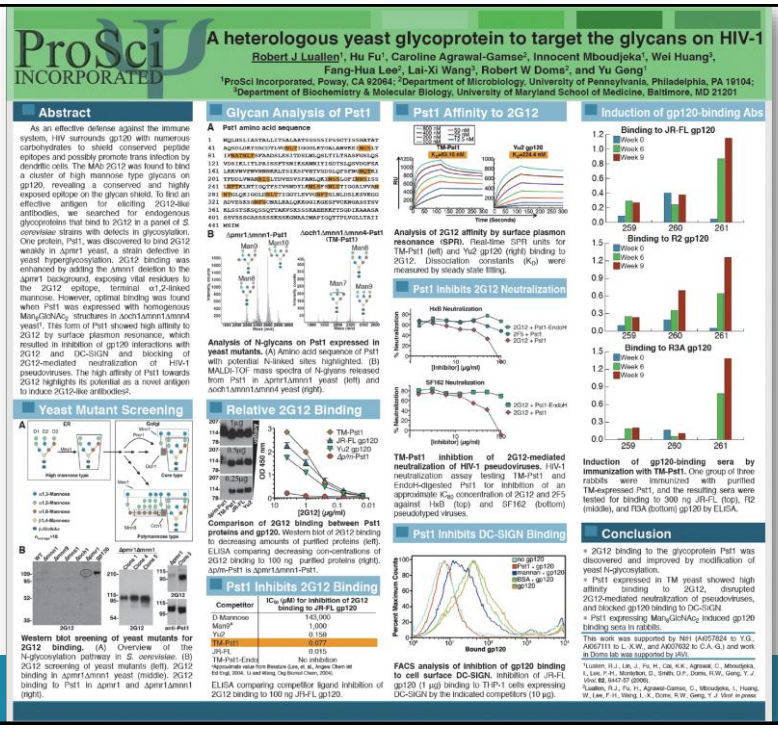

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Molecular Nanomachines

Lorenzo T. Flores, Matthew J. Comstock, Armen Kirakosian, Jongweon Cho, Michael F. Crommie
Department of Physics, University of California, Berkeley

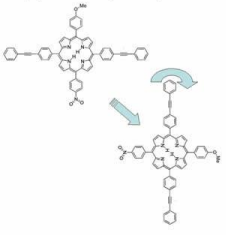
Abstract

Using Scanning Tunneling Microscopy under UHV and temperatures between 90 to 270K, various functionalized porphyrin molecules are deposited on the Au(111) and Si(111) surfaces. This work is in its preliminary stages; however, results in the Au(111) case indicate that the porphyrin molecule absorbs in herringbone corners. This observation is in accordance with other researchers.

Nanomachines

Different molecules and atoms, such as porphyrin and indium, can act as nanomachines. Their chemical compositions, as in the case of porphyrin its dipole moment, allow them to be mechanically manipulated. This would allow for complex systems to be created on an atomic scale. In order to accomplish this we must first successfully deposit these molecules and atoms on a surface and investigate how they orient themselves on the base lattice structure. After this is understood, research on manipulating the placement and activity of nanomachines can begin.

Porphyrin molecule 1 (Yuefei Tao)

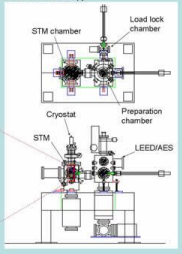


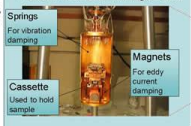
Materials and Methods

Scanning Tunneling Microscope (STM)

In order to view surfaces we use Scanning Tunneling Microscope (STM). An STM consists of two UHV (Ultra High Vacuum) chambers. One for preparation, the other for microscopy.

Two UHV chambers housing an STM

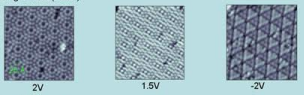




How the STM works

We apply a voltage between an atomically-sharp metallic tip (eg etched tungsten) and a conducting surface, then bring them to within a nanometer of each other. Electrons tunnel across the gap between the tip and sample. How they tunnel, from tip to surface or surface to tip, depends on the sample bias. The tunneling current is exponentially dependent on the tip-to-sample gap. We use an electronic feedback system to maintain a constant tunneling current as we scan the tip across the surface. The topographic image that we obtain records the height necessary to keep a constant current across the surface.

Exact same surface, Si(111) 125 X 125 Å^2, under different sample biases and the same tunneling current (0.5nA):



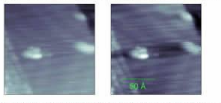
Other STM uses

The STM can also be used for spectra analysis, in which the tip is held over one point. The sample bias is then increased and the tunneling current is monitored. The data obtained tells us what voltages yield overlapping wave functions.

Data Analysis

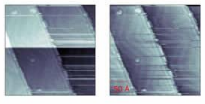
In ideal conditions the image will appear flat with very fine detail. However, the STM is very sensitive and not all physical activity can be controlled. For instance, if the sample is sitting at an angle there appears to be a smooth transition from dark to light. My responsibility for this summer has been to help develop software that will alter scans in order to account for erroneous activity.

Image corrected using plane and best-fit line subtraction.



Possible porphyrin on Au(111) @ 2.75V, 0.5 nA and 135.3 X 135.3 Å^2

Image corrected using offset and best fit line subtraction



Possible porphyrin on Au(111) @ 2.75V & 0.5 nA & 400 X 400 Å^2

Results

Work on nanomachines using functionalized porphyrin is still in its beginning stages. Preliminary data indicates that porphyrin tends to absorb in herringbone corners, as seen in the above figures. This observation is complies with other researchers.

The next step would be to continue depositing porphyrin and viewing how it situates itself. Once there is a better understanding of this activity research can begin on manipulating it to act as a machine.

References:

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OREGON HEALTH & SCIENCE UNIVERSITY

Persistent Pain in Assisted Living Facilities

C.A. Kemp, BSN, RN, BC; L.L. Miller, PhD, RN; H.M. Young, PhD, GNP, FAAN; S.K. Sikma, PhD, RN

HGNI Hartford Geriatric Nursing Initiative

What We Learned

Older adults with persistent pain living in assisted living facilities are more likely to have fallen in the previous year and require assistance with mobility.

Background

- Persistent pain is a common, debilitating condition among older adults regardless of residence[1]
- Assisted living facilities (ALFs) are the fastest growing segment of the senior housing market[2]

Purpose & Aims

This study describes the phenomenon of persistent pain in older adults residing in eight ALFs in Washington & Oregon

Aims

- Compare demographic characteristics, cognitive status, ADL function, & number of falls in past year in the pain group & non-pain group
- Describe analgesic orders of the pain group

Sample

- 156 residents from the Medication Management in Assisted Living Facilities study (NINR R21 NR009102-01) participated in this study
- Pain group (n=92, 59%) vs. non-pain group (n=64, 41%)
- Pain group inclusion criteria:
  - Routine or PRN opioid analgesic order OR
  - Routine (>once daily) non-opioid analgesic order OR
  - Pain-related diagnosis (e.g., arthritis, sciatica, "knee pain")

Methods

- Secondary data analysis
- Cross-sectional, descriptive design

Results

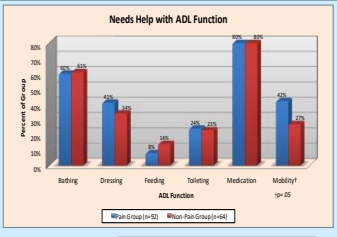

Table 1a – Sample Characteristics, Categorical Variables

Characteristics	Pain Group (n=92) n (%)	Non-Pain Group (n=64) n (%)
Gender		
Male	14 (15)	16 (25)
Female	78 (85)	48 (77)
Ethnicity		
Caucasian	89 (97)	62 (97)
Other	2 (2)	2 (3)
Not reported	1(1)	
Legal represent.		
Self	63 (68)	39 (61)
Family member	26 (28)	23 (35)
Other	3 (3)	1 (1)
Not reported		1(1)
Payment source[2]		
Private	60 (66)	52 (81)
Medicaid	31 (34)	12 (19)
Cognitive status		
Alert	46 (50)	35 (55)
Confused, memory problems	40 (44)	24 (38)
Not reported	6 (6)	5 (8)
Fell in past year	**46 (50)**	**26 (41)**

[2] p=.04

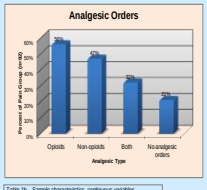

Table 1b – Sample characteristics, continuous variables

Characteristics	Pain group (n=92) mean (SD)	Non-pain group (n=64) mean (SD)	p-value
Age (years)	83 (7.8)	83 (6)	ns
ADL Function score	1.7 (1.4)	1.6 (1.6)	ns
Length of stay (months)	25.4 (22)	23.5 (18.3)	ns

Discussion

- Prevalence of persistent pain in sample (59%) matches prevalence of persistent pain in other studies with older adults
- All residents required assistance with 1 to 2 ADLs on average; however, residents in the pain group required significantly more assistance with mobility
- 50% of residents in pain group fell in past year compared with 41% in non-pain group, although difference was not significant

Next Steps

- Examine correlations among falls, mobility, and analgesic orders in assisted living residents
- Describe changes in analgesic orders over 6-month period of parent study
- Examine impact of analgesic order changes on number of falls and assistance with mobility

Limitations

- Research questions formulated based on available data
- Data collected by chart review with minimal data verification
- Cross-sectional design prohibits analysis of changes over time or causal effect

Acknowledgments

NINR R21 NR009102-01
John A. Hartford Building Academic Geriatric Nursing Capacity Pre-Doctoral Scholarship

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23

WHEN BAD THINGS HAPPEN TO OLDER PEOPLE: THE ROLE OF INTERVENING EVENTS ON THE DEVELOPMENT OF DISABILTY

Thomas M Gill MD, Heather Allore PhD, Theodore R Holford PhD, Zhenchao Guo PhD Yale University School of Medicine

WHAT WE LEARNED

Illnesses and injuries leading to either hospitalization or restricted activity represent important sources of disability for community-living older persons, ***regardless*** of the presence of physical frailty.

These intervening events may be suitable targets for the prevention of disability.

BACKGROUND

A more complete understanding of the disabling process would likely facilitate the development of interventions aimed at preventing disability among community-living older persons.

OBJECTIVES

To evaluate the relationship between intervening events and the development of disability

To determine whether this relationship is modified by the presence of physical frailty

METHODS

Prospective study of 754 nondisabled, community-living persons, aged 70+ years

Categorized participants into two groups according to the presence or absence of physical frailty, which was defined on the basis of slow gait speed

Followed participants with monthly telephone interviews for up to 5 years

- to determine the occurrence of disability
- to ascertain exposure to intervening events, which included illnesses and injuries leading to either hospitalization or restricted activity

RESULTS

Kaplan-Meier Curves for Development of Any Disability, Persistent Disability, and Severe Disability According to Presence of Physical Frailty at Baseline

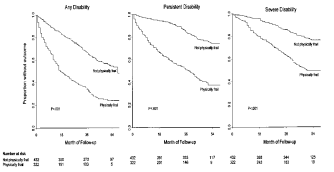

Table 3. Association Between Proximate Intervening Events and Disability Outcomes According to Physical Frailty at Baseline

Proximate Intervening Event	Level of Baseline Physical Frailty	Any Disability	Persistent Disability	Severe Disability
		Multivariable Hazard Ratio*		
Hospitalization	All participants	60	44	132
	Physically frail	34	32	93.2
	Not physically frail	117	73	261
Restricted activity only	All participants	5.1	3.3	7.3
	Physically frail	4.1	3.3	5.2
	Not physically frail	6.6	2.9	13

*All values are statistically significant at P < .001

Table 1. Baseline Characteristics of Study Participants

Characteristic*	Physically Frail: No (n=432)	Physically Frail: Yes (n=322)	P Value
Mean age, years	76.9 ± 4.7	80.4 ± 5.4	<.001
Female, n (%)	260 (60.2)	227 (70.5)	.003
Non-Hispanic white, n (%)	366 (92.4)	253 (87.5)	.039
Lives alone, n (%)	145 (34.3)	150 (46.6)	<.001
Years education, years	12.5 ± 2.9	11.3 ± 2.9	<.001
Chronic conditions, mean	1.6 ± 1.2	2.2 ± 1.3	<.001
Cognitively impaired, n (%)	30 (6.1)	51 (15.8)	<.001
Depressive symptoms, n (%)	61 (14.1)	65 (20.5)	<.001

Table 4. Population Attributable Fractions

Proximate Intervening Event	Any Disability	Persistent Disability	Severe Disability
Hospitalization	.48	.46	.68
Restricted activity only	.19	.13	.18

Table 2. Factors Associated with Development of Any Disability

Factor	Multivariable Hazard Ratio	95% CI	P Value
Age per each 5 years	1.3	1.2 to 1.5	<.001
Female sex	1.1	0.9 to 1.4	.37
Non-Hispanic white	0.9	0.6 to 1.3	.58
Lives alone	0.7	0.6 to 0.9	<.001
Years of education	1.0	0.9 to 1.0	.05
No. of chronic conditions	1.1	1.0 to 1.2	.08
Cognitive impairment	1.3	1.0 to 1.6	.07
Depressive symptoms	1.3	1.0 to 1.7	.03
Physical frailty	2.2	1.8 to 2.7	<.001
Proximate intervening events			
Hospitalization	60	46 to 78	<.001
Restricted activity only	5.1	3.8 to 6.7	<.001
Distant intervening events			
Hospitalization	1.3	0.9 to 1.1	.66
Restricted activity only	1.3	1.0 to 1.1	.07

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Please Don't Measure My "Burden" Duty and Satisfaction Are What Matter to Me

Lyda C. Arévalo-Flechas PhD, RN
The University of Texas Health Science Center at San Antonio

UT Health Science Center San Antonio

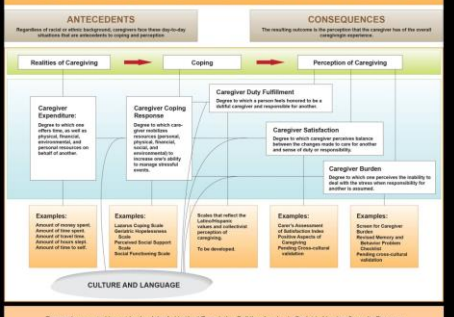
HGNI Hartford Geriatric Nursing Initiative

What We Learned & Where We Are Headed

Measures for burden in the majority population may not assess the same concept in Latinos/Hispanics and other populations. The best measures of the impact of caregiving duties and the interventions to minimize negative effects may lie in concepts that express the impact more positively.

Duty fulfillment and satisfaction are proposed as positive perceptions of what Latino/Hispanic Alzheimer's caregivers experience. Further qualitative exploration of these concepts will provide the basis for instruments to measure these two types of caregiver perception not considered in current theoretical models.

CULTURALLY INFORMED CONCEPTUAL ORIENTATION OF CAREGIVING



Research supported in part by the John A. Hartford Foundation Building Academic Geriatric Nursing Capacity Program
Special thanks to Asociacion Colombiana de Alzheimer and the caregivers who participated in the study.

Background

- Burden is not the best way to describe the impact of caregiving on Latino/Hispanic caregivers of a relative with Alzheimer's disease.
- Current models do not consider the role culture and language play in how caregiving is perceived.
- Spanish lacks a word that translates to the English "burden." The Spanish word "carga" translates only to a physical load.
- Neither "burden" nor "carga" are culturally competent words to accurately describe Latino/Hispanic caregiving.

Assumptions

- Each culture gives people a way to see the world (Spradley, 1979). This worldview is passed from one generation to the next primarily through language.
- More than a way to communicate, language also creates and expresses cultural reality (Spradley, 1979). Ways of perceiving, categorizing, and thinking about one's world result directly from one's language.
- The linguistic (cognitive) categories that make up one's reality and define actions are meanings (Krauss, 2005). Meaning is essential to human life (Frank, 1963). Meaning making allows us to make sense of our lives and experiences, as humans.

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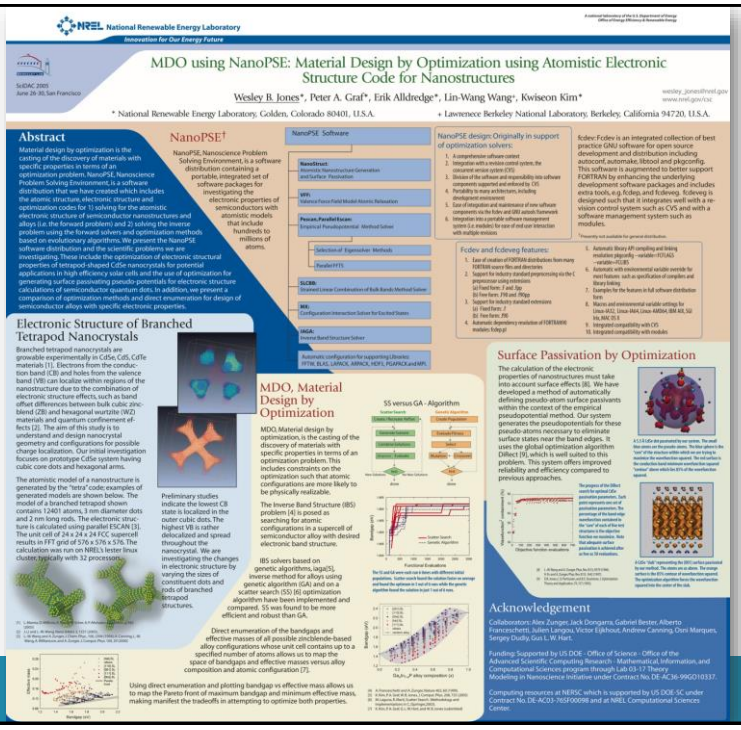

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Adapting Five Key Social Instruction Strategies to the CS Educational Environment

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WHY SOCIAL INSTRUCTION?

Social instruction addresses the changing needs of CS and STEM students in an economy driven by rapid technological innovation and globalization. Information and innovation are now transmitted at a rate beyond the capability of individual learners; globalization has led to more and more diversity in the classroom and the workplace.

To prepare students for these demands, CS and STEM curricula have shifted away from a "lone ranger" approach to learning in favor of collaborative, holistic and interdisciplinary learning models which leverage teams' collective brainpower, strengths and expertise while fostering and valuing diversity. The more complex the activity, the more team skills are required by the participants. Social learning strategies are key to addressing the demands of 21st-century CS and STEM education.

CHALLENGE
Making diversity issues concrete and relevant for all students, not just students from underrepresented populations

SOLUTION
Mock hiring exercise where identical resumes are presented to students with female and male names, providing an opportunity for discussing conscious and unconscious bias (Cohen, VanDeGrift at ICER 2008)

LEGITIMIZATION OF DIFFERENCE
Explicitly valuing diversity to support retention of women and other underrepresented groups

CHALLENGES
Not enough focus on course outcomes; Taking time in class; Professor is the expert, students might give each other incorrect info

SOLUTION
Students can become experts on something and present to class; More in-depth content coverage is possible and professor can fact check the information. Example: upper-level students each learn an uncommon programming language and compare/contrast advantages.

RECIPROCAL LEARNING
Empowering students to explain their learning to other students

SOCIAL INSTRUCTION STRATEGIES

The *community of learners* model encourages distributed expertise, promotes effective teamwork, and aids in improving diversity in its many forms.

ACTIVE LEARNING
Strategic, self-conscious, self-motivated, and purposeful learning

CHALLENGE
Too much content to cover to have time for in-class exercises

SOLUTION
Quick surveys like "What was the clearest idea?" and the "muddiest" point reinforce learning and allow unclear ideas to be addressed before attempting new material.

COLLABORATIVE LEARNING
Problem-solving and team environments that positively rely on interdependence

CHALLENGE
Concerns about some students "freeloading" off others

SOLUTION
In *pair programming*, students alternate frequently between clearly specified, mutually dependent roles: *driver* and *navigator*.

GUIDED INSTRUCTION
Gradually reducing scaffolding of the student learning process

CHALLENGE
scaffolding = spoon-feeding

SOLUTION
For novice programmers, completing a program instead of facing a blank file can facilitate early success and a focus on code function.

We gratefully acknowledge the National Science Foundation for their support of this work under the CCLI program (Awards 0817625, 0816642, and 0814802).

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A Life of Quality?

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Systematic review and meta-analysis of interventions relevant to quality of life for persons with intellectual disabilities and dementia

Background

Shifts in population, life expectancy, and associated prevalence rates have brought attention to services for persons with intellectual disabilities (ID) and dementia, which are ill-prepared to meet growing needs.

Aim

Synthesis of ID literature in order to assess: 1) the effectiveness of psychosocial interventions with QOL-related outcomes, and 2) their relevance for persons who are aging with dementia.

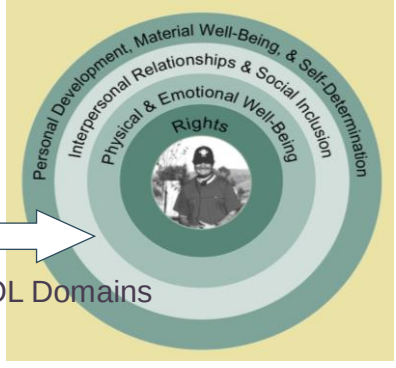
Methods

Use of a QOL conceptual framework with targeted domains/indicators (Schalock & Verdugo, 2002).

Electronic and hand searches to uncover published studies spanning 25 years from databases, journals, conference proceedings, reference lists, etc.

Study selection, quality assessment, and data abstraction undertaken by two independent reviewers.

Narrative synthesis of studies and fixed/random effects meta-analyses by classified QOL domain.



Key QOL Domains

A dissertation funded by the John A. Hartford Doctoral Fellows Program in Geriatric Social Work, Administered by the Gerontological Society of America

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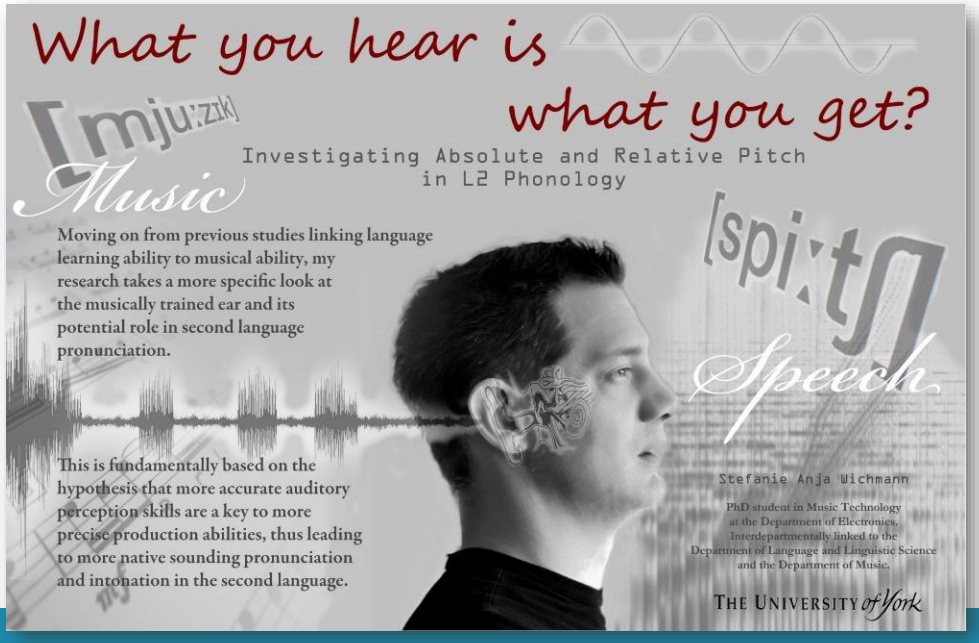

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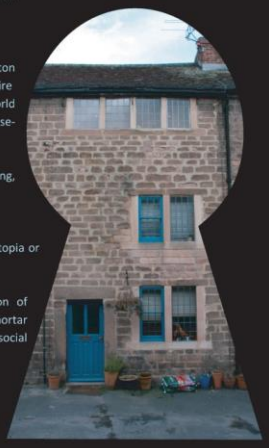
Who'd live in a house like this?

" WANTED. Families, particularly women and children to work in the Textile Mill. They may be provided with comfortable houses..."

(from an advert placed by mill owner Thomas Evans in 1787)



Home of the first water-powered cotton mill, the Derwent Valley in Derbyshire presents a fascinating insight into the world of textile workers living within purpose-built communities.

Employees were provided with housing, schooling and a weekly refuse collection .... but at what cost?

Did these workers live in an industrial utopia or in Blake's "dark satanic mills"?

Through the archaeological examination of building design; we can turn bricks and mortar into an understanding of the economic, social and cultural lives of these communities.

Join me as we go through the keyhole to examine the homes of the working-class.

Suzanne Lilley
Department of Archaeology

THE UNIVERSITY of York

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