Capacitação em Escrita Científica

Módulo 2

Prof. Dr. Valtencir Zucolotto

Grupo de Nanomedicina e Nanotoxicologia
Instituto de Física de São Carlos, USP

USP, 2013

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Workshop Outline

Modulo 1: O Gênero Literário

    Seções de Um Artigo Científico

Módulo 2: Estrutura 1: *Abstract*

Módulo 3: Estrutura 2: *Introduction*

Módulo 4: Estrutura 3: *Results and Discussion, Conclusion*

Módulo 5: Estilo

    Linguagem 1: Especificidade, Complexidade e Ambiguidade

Módulo 6: Linguagem 2: Redundâncias, Ação no Verbo, Fluidez de Texto, Ritmo de Escrita

Módulo 7: Linguagem 3: *Plain English*, Escrever em Inglês, Preposições

Módulo 8: Linguagem 4: *Topic Sentences, Cover Letters*, *Final Remarks*

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Módulo 2

Estrutura 1: Abstract

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Abstract

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An abstract summarizes the major aspects of the paper

The abstract contains only text

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-A good, well-written abstract allows the reader to quickly identify the major contributions of the paper to the area.

-Remember that many readers only have access to title and abstract

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Abstract

Informative

Contains all the relevant information of the paper

X

Descriptive

Describes only the nature/purpose of the study

Michael Alley *The Craft of Scientific Writing,* **3rd edition (Springer-Verlag, 1996).**

Escrita Científica

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Abstract

Although several names exist for summaries, there are essentially two approaches

This paper describes a new inertial navigation system for mapping oil and gas wells. In this paper, we will compare the mapping accuracy and speed for this new system against the accuracy and speed for conventional systems.

Descriptive

This paper describes a new inertial navigation system that will increase the mapping accuracy of oil wells by a factor of ten. The new system uses three-axis navigation that protects sensors from high-spin rates. The system also processes its information by Kalman filtering (a statistical sampling technique) in an on-site computer. Test results show the three-dimensional location accuracy is within 0.1 meters for every 100 meters of well depth, an accuracy ten times greater than conventional systems.

Informative

Source: Michael Alley *The Craft of Scientific Writing*, 3rd edition (Springer-Verlag, 1996).

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Abstract

Style

- *Past Tense (whenever possible);*

- *Active voice preferred;*

- *Concise, complete sentences.*

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For Life Sciences and Engineering

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Escrita Científica

Abstract

Contextualization

Gap

Purpose

Methodology

Results

Conclusions

Aluísio, S.M. (1995). *Ferramentas para Auxiliar a Escrita de Artigos Científicos em Inglês como Língua Estrangeira*. **Tese de Doutorado**, IFSC-USP, 228 p.

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Escrita Científica

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Abstract

Case 1

Self-assembly of components larger than molecules into ordered arrays is an efficient way of preparing microstructured materials with interesting mechanical and optical properties. Although crystallization of identical particles or particles of different sizes or shapes can be readily achieved, the repertoire of methods to assemble binary lattices of particles of the same sizes but with different properties is very limited. This paper describes electrostatic self-assembly of two types of macroscopic components of identical dimensions using interactions that are generated by contact electrification. The systems we have examined comprise two kinds of objects (usually spheres) made of different polymeric materials that charge with opposite electrical polarities when agitated on flat, metallic surfaces. The interplay of repulsive interactions between like-charged objects and attractive interactions between unlike-charged ones results in the self-assembly of these objects into highly ordered, closed arrays. Remarkably, some of the assemblies that form are not electroneutral—that is, they possess a net charge. We suggest that the stability of these unusual structures can be explained by accounting for the interactions between electric dipoles that the particles in the aggregates induce in their neighbors.

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Escrita Científica

Abstract

1) **Context:** Self-assembly of components larger than molecules into ordered arrays is an efficient way of preparing microstructured materials with interesting mechanical and optical properties.

2) **GAP:** Although crystallization of identical particles or particles of different sizes or shapes can be readily achieved, the repertoire of methods to assemble binary lattices of particles of the same sizes but with different properties is very limited.

3) **Purpose:** This paper describes electrostatic self-assembly of two types of macroscopic components of identical dimensions using interactions that are generated by contact electrification.

4) **Methodology:** The systems we have examined comprise two kinds of objects (usually spheres) made of different polymeric materials that charge with opposite electrical polarities when agitated on flat, metallic surfaces.

5) **Results:** The interplay of repulsive interactions between like-charged objects and attractive interactions between unlike-charged ones results in the self-assembly of these objects into highly ordered, closed arrays. Remarkably, some of the assemblies that form are not electroneutral—that is, they possess a net charge.

6) **Conclusions:** We suggest that the stability of these unusual structures can be explained by accounting for the interactions between electric dipoles that the particles in the aggregates induce in their neighbors.

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Abstract

Case 2

Bioinert polyelectrolyte multilayers comprised of poly(acrylic acid) and polyacrylamide were deposited on colloidal particles (1.7 μm diameter) at low pH conditions by layer-by-layer assembly using hydrogen-bonding interactions. The multilayer films were coated uniformly on the colloidal particles without causing any flocculation of the colloids, and the deposited films were subsequently cross-linked by a single treatment of a carbodiimide aqueous solution. The lightly cross-linked multilayer films show excellent stability at physiological conditions (pH 7.4, phosphate-buffered saline), whereas untreated multilayer films dissolved. The multilayer-coated surfaces, both on flat substrates and on colloidal particles, exhibit excellent resistance toward mammalian cell adhesion. With this new solution-based cross-linking method, bioinert H-bonded multilayer coatings offer potential for biomedical applications.

*Yang et al, **Langmuir**; 2004; 20; 5978*

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Escrita Científica

Abstract

Context??

Gap??

Purpose?: Bioinert polyelectrolyte multilayers comprised of poly(acrylic acid) and polyacrylamide were deposited on colloidal particles (1.7 μm diameter) at low pH conditions by layer-by-layer assembly using hydrogen-bonding interactions.

Methodology: The multilayer films were coated uniformly on the colloidal particles without causing any flocculation of the colloids, and the deposited films were subsequently cross-linked by a single treatment of a carbodiimide aqueous solution.

Results: The lightly cross-linked multilayer films show excellent stability at physiological conditions (pH 7.4, phosphate-buffered saline), whereas untreated multilayer films dissolved. The multilayer-coated surfaces, both on flat substrates and on colloidal particles, exhibit excellent resistance toward mammalian cell adhesion.

Conclusions: With this new solution-based cross-linking method, bioinert H-bonded multilayer coatings offer potential for biomedical applications.

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For Business, Economics and Accounting Areas

???????

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Escrita Científica

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Abstract

Abstract

Purpose – The purpose of this paper is to explore the information that manufacturing companies have available when competitively bidding for service contracts.

Design/methodology/approach – A semi-structured interview study was undertaken with industrialists in various sectors, which are currently facing the issue of servitisation.

Findings – One of the main findings was that, despite the novelty of the process, the decision makers at the competitive bidding stage have an understanding of the involved uncertainties. In particular, the uncertainty arising from the customer as the user of the product and evaluator of the competitive bids in addition to the uncertainty connected to the competitors were identified as the main influences on the pricing decision.

Research limitations/implications – The research implications show the influences and considerations during the decision-making process at the competitive bidding stage for service contracts. These include the customer and the competitors.

Practical implications – Shortcomings in the current industrial practice were identified such as the approaches used to communicate the cost estimate for the service contract. The approaches currently used contradict research findings in the area of communicating uncertainty information, which means that further research is to be done to identify optimal approaches to displaying the uncertainty connected to the communicated information.

Originality/value – This paper offers a basis for research to understand the challenges industry faces when competitively bidding for service contracts. This can be used to develop novel approaches in supporting the decision maker such as a model that presents the probability of winning in comparison to the probability of making a profit.

Keywords Uncertainty, Competitive bidding, Information availability, Service contract, Servitisation

Paper type Research paper

Escrita Científica

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Abstract

J Business and Industrial Marketing, 28/7 (2013) 535–546

Abstract

Purpose – The purpose of this paper is to determine if transformational leadership has an effect on business-to-business salespeople's trust in the organization, whether trust in the organization affects moral judgment and if moral judgment in turn affects salesperson performance, specifically "world-class" sales performance.

Design/methodology/approach – Through the utilization of a national survey of 345 business-to-business salespeople, this study explored linkages between transformational leadership, trust in the organization, moral judgment and world class sales performance using structural equation modeling.

Findings – Results suggest that transformational leadership can be used to influence sales performance through trust in the organization and salesperson moral judgment.

Originality/value – The paper furthers the understanding of transformational leadership and its impact on salespeople. The interaction of three variables (transformational leadership, trust in the organization, and the moral judgment of the salesperson) and their ability to relate to world class sales performance provide an interesting strategic guide for sales organizations, as well as a meaningful set of managerial tools that can assist in constructing a performance driven sales organization. These constructs have not been simultaneously investigated prior to this research.

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Examples from the Literature

Escrita Científica

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Abstract

Social media has become an important venue for marketers to reach their audiences. Understanding factors that influence the adoption and frequency of use of social media services can assist marketers in selecting the social media to use and how to best structure their social media content. This research examined factors impacting the adoption and frequency of use of various social media services – Facebook, Twitter, Pinterest, and Google+ – among undergraduate university students 18 to 23 years old. The findings included the positive relationship between frequency of use of social media and its ease of use, enjoyment, and perceived usefulness.

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Escrita Científica

Economics

Escrita Científica

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Abstract

The agricultural sector is highly vulnerable to bioterrorism attacks with the potential for severe economic consequences. This article presents estimates of state-by-state total economic impacts of a hypothetical agroterrorism attack that uses foot-and-mouth disease (FMD) pathogens, which is one of the most contagious animal diseases and can be easily weaponized. The authors estimate the economic impacts across the U.S. states by applying the National Interstate Economic Model (NIEMO), a multiregional input output (MRIO) model. Total economic impacts range from $23 billion to $34 billion. The overwhelming sources of the losses are due to domestic and international demand cuts. The results of this research highlight the point that the economic impacts are nationwide, regardless of the location of the attack because of large-scale export losses.

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Abstract

We present a new measure of legal protection of minority shareholders against expropriation by corporate insiders: the anti-self-dealing index. Assembled with the help of Lex Mundi law firms, the index is calculated for 72 countries based on legal rules prevailing in 2003, and focuses on private enforcement mechanisms, such as disclosure, approval, and litigation, that govern a specific self-dealing transaction. This theoretically grounded index predicts a variety of stock market outcomes, and generally works better than the previously introduced index of anti-director rights.

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Escrita Científica

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Abstract

This article checks for the robustness of the estimate of the impact of market access (MA) on the regional variability of human capital, derived from the New Economic Geography literature. The hypothesis is that the estimate of the coefficient of the measure of MA is actually capturing the effect of regional differences in the industrial mix and the spatial dependence in the distribution of human capital. Results for the Spanish provinces indicate that the estimated impact of MA vanishes and becomes non-significant once these two elements are included in the empirical analysis.

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Escrita Científica

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Abstract

This research investigates how the experience learned in repeated transactions by consumers and manufacturers would affect supply-chain partners' strategic decisions such as price, order quantity and service level. Consumer demand depends on two factors: (1) retailer price and (2) service level provided by the manufacturer in the past and current transaction periods. Game theory is used to understand interactions between the horizontally competitive suppliers and their vertical interactions to the common retailer in the one-period looking-ahead decision environment. Dynamic-system concepts are integrated into the game-theoretic model for understanding the evolution of the strategic decisions over multiple time periods. The research shows that the manufacturer with any type of cost-advantage for providing more services to its customers will capture a larger market than its competitor. Comparison of our model to the myopic model indicates that the myopic suppliers, who ignore the customer learning effect on future periods, shrink their market sizes and earn less profit over time. The manufacturers who use the learning experience to plan future investment can prevent this phenom- enon from happening and enhance their competitiveness.

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Management

Escrita Científica

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Abstract

Supplier selection decisions are characterized by a high degree of uncertainty. We draw upon the behavioral operations management and decision-making literatures to examine factors that lead to the adoption of procedural rationality as a decision strategy. In addition, we emphasize the effect of procedural rationality on decision-makers' perceived uncertainty and subsequent supplier decision performance. Our structural equation model with cross-country survey data from 461 respondents in the United States and China reveals that (i) organizational, situational, and personal antecedents significantly influence the use of procedural rationality, (ii) procedural rationality is effective in reducing uncertainty in supplier selection decisions, and (iii) the reduction in decision uncertainty improves supplier decision performance. We also emphasize contextual idiosyncrasies between China and the United States.

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Escrita Científica

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Abstract

While Collaborative Planning, Forecasting, and Replenishment (CPFR) information systems have been increasingly deployed to improve supply chain operations in a cross section of industries, the extant literature has largely overlooked the learning effects within organizations, thereby resulting in incomplete assessment of their business value. Using an operational-level panel data for nine product lines over 2.5 years, we empirically examine the learning curves in CPFR between Motorola, a mobile phone manufacturer, and one of its U.S.-based national retail partners. We found that the two key components of CPFR, collaborative forecasting (CF) and collaborative replenishment (CR), exhibit distinct learning curves. Forecast accuracy improves immediately following CPFR implementation but the rate of improvement slows over time, whereas inventory levels increase at first and begin decreasing after a period. Further, we found different learning effects in terms of inventory levels when products are later replaced with new form factors. Product replacements have lower inventory levels than their antecedents, at least for lowend products. We discuss important implications for theory and practice at the interface of information systems and operations management.

Escrita Científica

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Abstract

The point of departure for this article is the need for product-centric firms to compete in the market by adding services to their portfolio, which requires a greater focus on service innovation if they are to remain competitive. A major challenge associated with the shift from product-centeredness to a product and-service orientation is the management of the essential dynamic capabilities of sensing, seizing, and reconfiguring needed for service innovation. The research study reported identifies key micro foundations forming the basis of successful realignment of a firm's dynamic capabilities so as to achieve a better fit with service innovation activities. Eight qualitative case studies of product-centric firms form the basis of the study. The findings make three primary contributions to the body of knowledge. First, they extend the existing literature on dynamic capabilities by specifically discussing micro foundations related to service innovation. Second, the study extends existing work on service innovation into the manufacturing industries by identifying the key micro foundations in that context. Third, the research provides empirical evidence of dynamic capabilities in practice, especially in product-centric settings in which the service context is novel.

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Escrita Científica

Abstract

The term biochar refers to materials with diverse chemical, physical and physicochemical characteristics that have potential as a soil amendment. The purpose of this study was to investigate the P sorption/desorption properties of various slow biochars and one fast pyrolysis biochar and to determine how a fast pyrolysis biochar influences these properties in a degraded tropical soil. The fast pyrolysis biochar was a mixture of three separate biochars: sawdust, elephant grass and sugar cane leaves. Three other biochars were made by slow pyrolysis from three Amazonian tree species (Lacre, Inga and Embauba) at three temperatures of formation (400 °C, 500 °C, 600 °C). Inorganic P was added to develop sorption curves and then desorbed to develop desorption curves for all biochar situations. For the slow pyrolysis, the 600 ºC biochar had a reduced capacity to sorb P (4–10 times less) relative to those biochars formed at 400 °C and 500 °C. Conversely, biochar from Inga desorbed the most P. The fast pyrolysis biochar, when mixed with degraded tropical mineral soil, decreased the soil's P sorption capacity by 55% presumably because of the high soluble, inorganic P prevalent in this biochar (909 mg P/kg of biochar). Phosphorus desorption from the fast pyrolysis biochar/soil mixture not only exhibited a common desorption curve but also buffered the soil solution at a value of ca. 0.2 mg/L. This study shows the diversity in P chemistry that can be expected when biochar is a soil amendment and suggests the potential to develop biochars with properties to meet specific objectives.

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Abstract

Purpose – The applicability of the customer life time value (CLV) concept goes beyond consumer markets. Specifically, the purpose of this paper is to show how a make-to-order manufacturing company in a supply chain can set customer-focus manufacturing strategies using CLV.

Design/methodology/approach – Data from an integrated steel plant is used to calculate the life time value of customers based on the past value, the potential value, and their loyalty. The past value of a customer is based on the historical data and the future value of a customer is then forecasted. The loyalty index of a customer is determined by survey results.

Findings – In general, it was found that the CLV for the most valuable customers increases exponentially and the top 28 percent of customers constitute 80 percent of the total value of all customers.

Research limitations/implications – This study focuses on make-to-order manufacturing organizations and the three strategies suggested for business process improvement need to be re-evaluated for make-to-stock or mass production.

Practical implications – Based on these results, the authors suggest three strategies for business process improvement and revenue growth for the plant.

Originality/value – This study constitutes an initial effort to develop a CLV model for make-to-order manufacturing organizations for improving plant performance. The model links customers with not only the front office functions but also with ERP systems. Organizations that are part of value chains can benefit significantly from CLV applications.

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Accounting

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Escrita Científica

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Abstract

In recent years there has been an increased interest in examining the relationships among management control systems (MCS), business strategy and organizational performance. In this study, the moderating effects created by two uses of MCS (diagnostic use and interactive use as per Simon's 'levers of control' framework) on strategy performance relationship are examined. The results of the survey-based research support the postulate that these two uses moderate the relationship between business strategy and performance. However, it is found that the moderating effect created by the diagnostic use of MCS is more significant when the cost leadership strategy is used for Performance. No evidence is found in favor of Porter's proposition on mutual exclusiveness of business strategies for better performance. Consequently, the results of this study have important implications for both management practice and the academic literature.

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Escrita Científica

Abstract

It is well known that mean-variance portfolio selection is a time-inconsistent optimal control problem in the sense that it does not satisfy Bellman's optimality principle and therefore the usual dynamic programming approach fails. We develop a time-consistent formulation of this problem, which is based on a local notion of optimality called local mean-variance efficiency, in a general semimartingale setting. We start in discrete time, where the formulation is straightforward, and then find the natural extension to continuous time. This complements and generalises the formulation by Basak and Chabakauri (2010) and the corresponding example in Björk and Murgoci (2010), where the treatment and the notion of optimality rely on an underlying Markovian framework. We justify the continuous-time formulation by showing that it coincides with the continuous-time limit of the discrete-time formulation. The proof of this convergence is based on a global description of the locally optimal strategy in terms of the structure condition and the Föllmer–Schweizer decomposition of the mean-variance trade-off. As a by-product, this also gives new convergence results for the Föllmer–Schweizer decomposition, i.e., for locally risk-minimising strategies.

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Abstract

Purpose – The purpose of this paper is to determine whether self-managed superannuation fund (SMSF) trustees earn: the equity risk premium or any premium to the riskless rate of interest.

Design/methodology/approach – Using a sample of 100 SMSFs, the average annual returns since inception of the funds in the sample are compared with: the average annual equity risk premium since that time and the average yield of Commonwealth Government Securities since that time.

Findings – The investigation reveals: the SMSFs in the sample do not earn the equity risk premium and the SMSFs in the sample did not earn a premium to riskless rate of interest. This leads to the conclusion that the SMSFs have borne risk without commensurate reward.

Research limitations/implications – The trustees' rationale for making particular investment decisions and the consistency of the portfolio structures with the risk profiles of the trustees are two areas that may be fruitfully explored in future research.

Practical implications – For SMSF trustees, a simple portfolio that divides assets between (unmanaged) index funds and risk-free securities on the basis of trustees' risk aversion may generate better results than the existing portfolios. For policy makers, the relatively poor performance of SMSFs implies that the superannuation system as currently structured may not be generating returns that will maximize retirement incomes.

Originality/value – The paper provides the first comparison of SMSF returns with the equity risk premium and the riskless rate of interest measured at appropriate horizons.

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Miscellaneous

Escrita Científica

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Abstract

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Case 3

Dendrimers are branched, synthetic polymers with layered architectures that show promise in several biomedical applications. By regulating dendrimer synthesis, it is possible to precisely manipulate both their molecular weight and chemical composition, thereby allowing predictable tuning of their biocompatibility and pharmacokinetics. Advances in our understanding of the role of molecular weight and architecture on the *in vivo* behavior of dendrimers, together with recent progress in the design of biodegradable chemistries, has enabled the application of these branched polymers as anti-viral drugs, tissue repair scaffolds, targeted carriers of chemotherapeutics and optical oxygen sensors. Before such products can reach the market, however, the field must not only address the cost of manufacture and quality control of pharmaceutical-grade materials, but also assess the long-term human and environmental health consequences of dendrimer exposure *in vivo*.
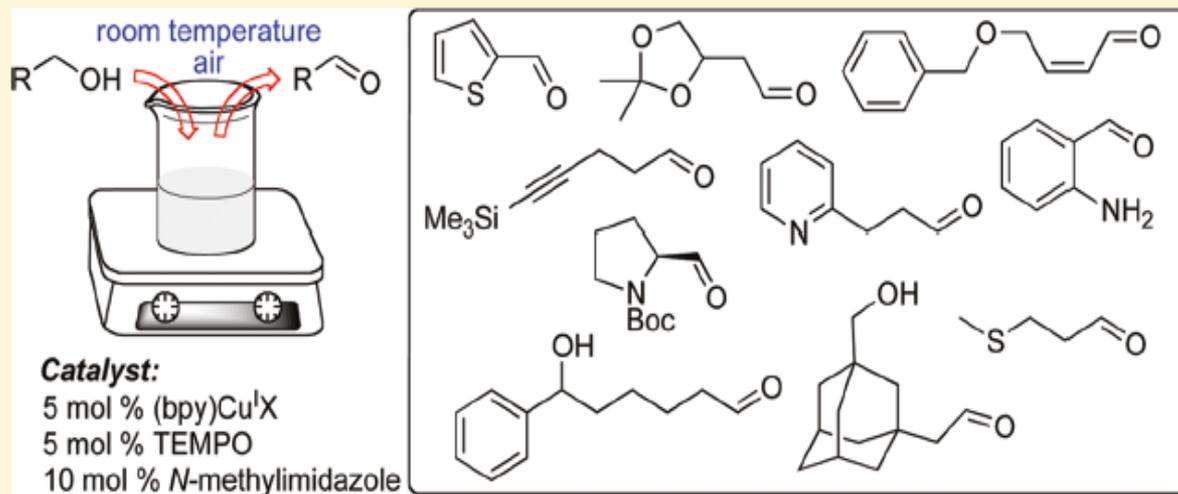
Lee *et al.,* **Nature Biotechnology 23**, 1517, 2005 *(Review)*

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Abstract

Context: Dendrimers are branched, synthetic polymers with layered architectures that show promise in several biomedical applications. By regulating dendrimer synthesis, it is possible to precisely manipulate both their molecular weight and chemical composition, thereby allowing predictable tuning of their biocompatibility and pharmacokinetics. Advances in our understanding of the role of molecular weight and architecture on the *in vivo* behavior of dendrimers, together with recent progress in the design of biodegradable chemistries, has enabled the application of these branched polymers as anti-viral drugs, tissue repair scaffolds, targeted carriers of chemotherapeutics and optical oxygen sensors.

Gap: Before such products can reach the market, however, the field must not only address the cost of manufacture and quality control of pharmaceutical-grade materials, but also assess the long-term human and environmental health consequences of dendrimer exposure *in vivo*.

Descriptive or Informative ??

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Escrita Científica

ABSTRACT:

Aerobic oxidation reactions have been the focus of considerable attention, but their use in mainstream organic chemistry has been constrained by limitations in their synthetic scope and by practical factors, such as the use of pure O_2 as the oxidant or complex catalyst synthesis. Here, we report a new (bpy)Cu^I/TEMPO catalyst system that enables efficient and selective aerobic oxidation of a broad range of primary alcohols, including allylic, benzylic, and aliphatic derivatives, to the corresponding aldehydes using readily available reagents, at room temperature with ambient air as the oxidant. The catalyst system is compatible with a wide range of functional groups and the high selectivity for 1° alcohols enables selective oxidation of diols that lack protecting groups.

Hoover et al., J. Am. Chem. Soc. 133, 16901, 2011

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Escrita Científica

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Prática 6

Accurate and low-cost sensor localization is a critical requirement for the deployment of wireless sensor networks in a wide variety of applications. Low-power wireless sensors may be many hops away from any other sensors with a priori location information. In cooperative localization, sensors work together in a peer-to-peer manner to make measurements and then form a map of the network. Various application requirements (such as scalability, energy efficiency, and accuracy) will influence the design of sensor localization systems. In this article, we describe measurement-based statistical models useful to describe time-of-arrival (TOA), angle-of-arrival (AOA), and received-signal-strength (RSS) measurements in wireless sensor networks. Wideband and ultra-wideband (UWB) measurements, and RF and acoustic media are also discussed. Using the models, we show how to calculate a Cramér-Rao bound (CRB) on the location estimation precision possible for a given set of measurements. This is a useful tool to help system designers and researchers select measurement technologies and evaluate localization algorithms. We also briefly survey a large and growing body of sensor localization algorithms. This article is intended to emphasize the basic statistical signal processing background necessary to understand the state-of-the-art and to make progress in the new and largely open areas of sensor network localization research.

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Escrita Científica

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Reordene as frases da maneira correta, categorizando-as:

Here we report that dentin matrix protein 1 (DMP1), an acidic protein, can nucleate the formation of hydroxyapatite in vitro in a multistep process that begins by DMP1 binding calcium ions and initiating mineral deposition.

Bones and teeth are biocomposites that require controlled mineral deposition during their self-assembly to form tissues with unique mechanical properties.

Acidic extracellular matrix proteins play a pivotal role during biomineral formation.

The nucleated amorphous calcium phosphate precipitates ripen and nanocrystals form. Subsequently, these expand and coalesce into microscale crystals elongated in the c-axis direction.

Protein-mediated initiation of nanocrystals, as discussed here, might provide a new methodology for constructing nanoscale composites by self-assembly of polypeptides with tailor-made peptide sequences.

However, the mechanisms of protein-mediated mineral initiation are far from understood.

Characterization of the functional domains in DMP1 demonstrated that intermolecular assembly of acidic clusters into a -sheet template was essential for the observed mineral nucleation.

Nature Materials 2, 552–558, 2003

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Assignments

1. **Identify the five Top Journals in your research area**

2. **Select at least 10 abstracts and Introduction sections from good papers from these journals**

3. **Categorize all sentences in these abstracts based upon the proposed models**

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Escrita Científica

Sources

Source: Michael Alley *The Craft of Scientific Writing,* **3rd edition (Springer-Verlag, 1996).**

Hill et al., Teaching ESL students to read and write experimental papers, TESOL Quarterly, 16: 333, 1982:

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