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SHEWC 2008 – Safety, Health and Environmental World Congress – (2008: Santos)

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Prof. Dr. Claudio da Rocha Brito
Message from the General Chair

Life itself is a challenge once it is necessary a lot of efforts to survive in any environment. Surviving has been the main goal of human beings along the thousands of years of existence on the planet. The human intelligence plus the strong willing to survive has brought men existence to a level that man is now the master of the earth. With this conquest comes the responsibility over all existing beings.

For contemporary society the biggest challenge is therefore to find the optimum way to promote smart growth and development that will benefit the world society. Why the world society? Because although it is a wide world anything that happens anywhere can affect the entire society in deeper or lighter way, no matter the distances.

It is a global world, where distances and real time are being re dimensioned, such way that even human relations are changing due to the new linked system of information and communication. All thanks to the development of sciences and technology.



The question is how is it possible to promote responsible development? Certainly there is not only one answer. It demands people, groups of people in power, collaborators, and community leaders, etc committed to the principles of responsible and sustainable development.

It is primarily important to reduce the impact of men actions on natural environment and still improving the social and economic well-being of communities. It is urgent the fostering of actions that lead to educate and empower people to be involved in local decision making process and sustainable use of natural resources. It is necessary to search for better quality of life for now and future generations. It is a task for the today society; it is **“The global challenge to promote responsible development”**.

Concerning this matter SHEWC’2008 - Safety Environmental and Health World Congress is a forum for the discussions of such important issues, bringing scientists and researchers who have been working hard looking for ways to overcome the challenge to develop and use technology to help meet the most pressing human and societal needs.

COPEC – Council of Researches in Education and Sciences altogether with OPASS – Organization of Researches in Environment, Health and Safety are the organizations that proudly bring every year this congress, which count with the contributions that come from many areas of human knowledge as well as from many different Countries.

SHEWC’2008 - Safety Environmental and Health World Congress is a further step in the evolution of a very positive enterprise that started in 2000 counting with the efforts and good will of local scientists and researchers in order to



discuss and to suggest in a more consistent way politics and actions to enhance the life quality of the community. This year the organizers are very proud of the number of very good papers and presenters, as well as the keynote speakers.

Safety Environmental and Health World Congress (SHEWC'2008) is organized by COPEC – Council of Research in Education and Sciences and promoted by OPASS – Organization of Researches in Environment, Health and Safety in Technical Cooperation (in alphabetical order): AAMP (Fishing Museum Friends Society), ABENGE (Brazilian Society for Engineering Education), ABO (Brazilian Dental Association), AGERCO (Brazilian Agency for Coastal Management), ASEE (American Society for Engineering Education), ASIBEI (Iberian-American Association of Engineering Education Institutions), GCMM (Global Congress on Manufacturing and Management), IEEE-Ed.Soc. (Education Society of the Institute of Electrical and Electronics Engineers), IFEES (International Federation of Engineering Education Societies), IGIP (Internationale Gesellschaft für Ingenieurpädagogik), INTERTECH (International Council for Engineering and Technology Education), IRCWR (International Reference Center for Water Reuse), Porto Gente (PortFolk), RBE (Brazilian Network of Engineering), RCI (Réseau Carthagène d'Ingénierie), SBE (Brazilian Society of Ecotoxicology) and SEFI (Société Européenne pour la Formation des Ingénieurs).

We can not forget to mention and thank in special our partners and sponsors the Ecole Nationale d'Ingénieurs de Metz (ENIM), FAPERJ (State of Rio de Janeiro Research Foundation), FAPESP (State of São Paulo Research Foundation), CNPq (National Council for Scientific and Technological Development) and CAPES (Coordination for Improvement of Personnel of Superior Level).

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Many colleagues from many countries have given their support to SHEWC'2008 and fortunately the list is long and so it could not be comprised in a small space so our special thanks to all of them.

Our very special thanks to Prof. Arody Cordeiro Herdy Rector of UNIGRANRIO and Prof. Protasio Ferreira e Castro, Pro Rector of UNIGRANRIO who supports every activity for the enhancement of Education, in the City of Rio de Janeiro. We would like also to thank and congratulate the Local Program Committee, which efforts made this event possible.

On behalf of the organizers and me we wish you can enjoy this material and continue to contribute for the success of next Congresses, which richness is in the relations built along the exchange of ideas and joint ventures that it generates.

Finally my special thanks to the participants whose collaborations have enriched the event.

Prof. Dr. Claudio da Rocha Brito
GENERAL CHAIR
President of COPEC



Prof. Dr. Melany M. Ciampi
Message from the Program Chair

It is a privilege to be involved with the organization of such congress that has showed outstanding results and that we are sure will be very appreciated by the participants. SHEWC'2008 - Safety Environmental and Health World Congress is a great opportunity for scientists and professionals to acknowledge what is going on in researches about safety, environment and health world wide.

This edition counts with contributions of best quality, which show the importance of hard work of committed people with the goal to promote sustainable development. Global warming, renewable energy, deforestation, nanotechnology, immune diseases and other subjects are deeply discussed during this congress.

The choice of the theme of this year congress is **“The global challenge to promote responsible development”** is very fortunate once it provides a good platform for discussions of issues that in many ways affects the present and future generations. This edition of the Congress congregates professionals of many areas of sciences such as engineering, computer sciences, business, medical field to communication and arts, passing by dentistry, sociology, mathematics. And we

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have to point out that it is one remarkable characteristic of this congress since its first edition.

The main result of this congress is a contribution to the discussions and the outcomes about such important issues as well as for the search for the betterment of human beings life. The Book of Abstracts and the Proceedings constitute humble contributions and on behalf of the organizing committee we hope it comes to add to technological and scientific world community.

Very special Thanks to all the researchers, authors and participants as well as to all the supporters and cooperators, which efforts have enhanced the success of the SHEWC'2008 - Safety Environmental and Health World Congress.

Prof. Dr. Melany M. Ciampi
PROGRAM CHAIR
President of OPASS



Prof. Dr. Protasio Ferreira e Castro
Message from the Technical Chair

SHEWC - Safety, Health and Environmental World Congresses have been accomplished with the objective of making possible scientists and researchers to discuss the most recent developments reached in safety, health and environment. It was noticed in the participants of SHEWC the intention of doing an exchange of experiences in the four areas themes of the Congress.

In this sense, professionals that act in non governmental organizations, in the academy, in the market, and in the government they are aware that positive and negative experiences exist in safety, health and environment. An exam of the aspects positive, negative and of the facts future bearers it is the first step so that the information of significant value are transmitted and discussed pronouncing the insertion within the social responsibility.

The scientific works sent to the Technical Committee of SHEWC'2008 show that only when the reasons for positive and negative experiences are understood and published, the professionals, of safety, health and environment will have made truly everything to guarantee new successes and to prevent the appeal of the flaws.

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In these terms, the Technical Committee selected the works for their scientific value and also for the expectation that it is an event for exchange of experiences, and the proceedings of the conference their record.

The Technical Committee wishes the participants to have a profitable event certain that it is due to the ability of transmitting experiences, good and bad ones, and of basing in the record of others' experiences that the humanity has been capable to elaborate new sceneries for society and the citizen in particular.

Prof. Dr. Protasio Ferreira e Castro
TECHNICAL CHAIR
Pro Rector of UNIGRANRIO



Prof. Arody Cordeiro Herdy
Message from the Honorary Chair

Faculties-researchers of UNIGRANRIO have been participating in SHEWC'2008 - Safety, Health and Environmental World Congress, an international event and multidisciplinary. The event is an instrument for the development of ideas, of innovations, of sceneries and of cooperation among non-governmental organizations, universities, professionals of the market and municipal, state and federal governments.

The experiences in safety, health and environment are developed with different technologies and in different sceneries, which incorporate the participation of the population in the resignation and in the administration of the several programs and processes. The professionals and the researchers have been accumulating vast development experience, of adaptation of instruments and of programs that stay, sometimes, isolated or that are diffused and they are transferred with a lot of difficulty; a patrimony that should be known and used with larger evaluation capacity and with larger speed.

In these terms, the intention of UNIGRANRIO when supporting the accomplishment of SHEWC'2008 was that it is an event for exchange of experiences, and the proceedings of the conference their record.

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Finally, UNIGRANRIO thanks all that collaborated for the accomplishment of SHEWC'2008 and wishes a profitable Congress the all the participants.

Prof. Arody Cordeiro Herdy
HONORARY CHAIR
Rector of UNIGRANRIO



Prof. Dr. Joseph Harari
Message from the Vice Chair

The Organization of Researches in Environment, Health and Safety (OPASS) is an Organization of Civil Society of Public Interest that has the goal to develop researches in environment which aims to foster integrated environmental researches, seeking the conservation and protection of the natural resources, by the following actions.

- To accomplish integrated researches for the conservation of the natural resources and environmental protection;
- To create and to manage database on environmental researches;
- To publish the results of the researches in a wide way for the community's knowledge;
- To discuss the priorities of research programs with the community;
- To accomplish Congress, conferences, lectures, seminars, workshops and courses on environmental problems;
- To motivate the change of experiences and information with other institutions and government organizations to celebrate agreements to establish partnerships, to associate to people and institutions interested in environmental researches;



- To act to the public powers or private entities, requesting measures regarding the objectives of the entity;
- To participate in state, national and international institutions in the efforts for improvement of the environment conditions;
- To develop specialization courses and professional re - qualification;
- To act in the constant defense of the strategic role of the science and technology for the economical, social, cultural development and for the sovereignty of the Countries.

As in the Atlantic Forest Region is where the Nucleus develops most of its activities a Regional Nucleus has been created. It is the NPABS - Nucleus of Environmental Researches of Baixada Santista (now called Atlantic Forest Coast Region) that develops several activities in the region. It has been promoting monthly meetings in institutions of higher education in Santos and other cities open to scientists, authorities, companies, environmentalists and interested people in general for the discussion of problems of the environment in the region and the contributions of the scientific researches for its solution.

Prof. Dr. Joseph Harari

VICE CHAIR

President of Regional Nucleus of OPASS in Atlantic Forest Coast Region

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A CONVERSÃO DOS GASES DE EFEITO ESTUFA EM CRÉDITOS DE CARBONO
A DEGRADAÇÃO DO MEIO AMBIENTE: UM FENÔMENO MUNDIAL

A ESTRATÉGIA DE MANUFATURA DO SETOR DE MALHARIA RETILÍNEA PELA ANÁLISE DO
PROCESSO PRODUTIVO – O CLUSTER DO CIRCUITO DAS MALHAS

A GESTÃO E O CONTROLO DA DOR CÓNICA EM DOENTES ONCOLÓGICOS

A IMPORTÂNCIA DA PROMOÇÃO DA SAÚDE NOS LOCAIS DE TRABALHO

A POLÍTICA DE SAÚDE DO TRABALHADOR INSERIDA NA POLÍTICA DE SAÚDE COMO UM
TODO: EXPERIÊNCIAS DA ATUAÇÃO DO PROGRAMA DE SAÚDE TRABALHADOR DO ESTADO
DO RIO DE JANEIRO

ANÁLISE COMPARATIVA DA FORÇA DE RUPTURA A TRAÇÃO E DA ENERGIA TOTAL DE
RUPTURA NA MENSURAÇÃO DA RESISTÊNCIA MECÂNICA DE TECIDO BIOLÓGICO COM PRO-
PRIEDADE VISCOELÁSTICA NÃO-LINEAR. TRABALHO EXPERIMENTAL EM RATOS

ANÁLISE DE UM PROCESSO DE PRODUÇÃO DE BATERIAS CHUMBO-ÁCIDAS SOB O ENFOQUE
DA SEGURANÇA DO TRABALHO

ANÁLISE DO GERENCIAMENTO DOS RISCOS DECORRENTES DE RESÍDUOS DE SERVIÇOS DE
SAÚDE EM HOSPITAL: UM ESTUDO DE CASO



ANÁLISE ESTATÍSTICA DAS VARIABILIDADES DO CLIMA E DA PESCA DESEMBARCADA NO ESTADO DE SÃO PAULO (1967 – 2004)

ANALYSIS ON SUSTAINABLE DEVELOPMENT SITUATION OF YONGZHOU AREA BASED ON ECOLOGICAL FOOTPRINT MODEL

APLICAÇÃO DA AUTOMAÇÃO EM BENEFÍCIOS AMBIENTAIS E INDUSTRIAIS “GUINDASTE AUTOMATIZADO”

APLICAÇÃO DE SENSORIAMENTO REMOTO NO ESTUDO DA BACIA HIDROGRÁFICA DA HIDROVIA PARANÁ – PARAGUAI

APLICANDO A ENGENHARIA DA USABILIDADE NO PRONTUÁRIO ELETRÔNICO DO PACIENTE

AQUISIÇÃO E TRATAMENTO DE IMAGEM APLICADA À MODELAGEM DE ESTRUTURAS ÓSSEAS

AS PESQUISAS NA ÁREA AMBIENTAL EM SAÚDE COLETIVA E NOS PROGRAMAS DE PÓS-GRADUAÇÃO

ATIVIDADE PREDATÓRIA NA AMAZÔNIA: A NECESSIDADE DE MEDIDAS EFICAZES

AVALIAÇÃO AMBIENTAL DA MICRO-BACIA DO RIO TACIATEUA COMO SUBSÍDIO À GESTÃO DOS RECURSOS HÍDRICOS



AVALIAÇÃO DA PRESENÇA DE METAIS PESADOS SOLÚVEIS PRESENTES NA ÁGUA DO RESERVATÓRIO DE TUCURUI-PA

AVALIAÇÃO DE UM RESÍDUO AGROINDUSTRIAL COMO BIORREAGENTE PARA REMOÇÃO DE ÍONS Ni^{2+}

BANANA PITH FOR THE REMOVAL OF URANIUM IONS BY ADSORPTION PROCESS

BENEFÍCIOS DA UTILIZAÇÃO DE REJEITOS METÁLICOS NA PRODUÇÃO SIDERÚRGICA

CADMIUM AS AN ENVIRONMENTAL POLLUTANT USE OF PLANT AS BIO-INDICATOR OF POLLUTION (IN VIVO EXPERIMENTATION) INFLUENCE OF CADMIUM ON CHLOROPHYLL CONTENT OF CANADIAN WONDER BEANS (PHASEOLUS VULGARIS)

CARACTERIZAÇÃO DAS SUBSTÂNCIAS HÚMICAS AQUÁTICAS COM USO DE ESPECTROSCÓPIA DE UV-VIS

COMPORTAMENTO DE MISTURAS CIMENTÍCEAS COM AGREGADO MIÚDO DE GRANALHA DE AÇO

COMPOSTING OF HIGH MOISTURE WASTE FROM FRUIT PROCESSING INDUSTRY

CONHECIMENTOS VALORES E PRÁTICAS DE PROMOÇÃO/EDUCAÇÃO PARA A SAÚDE EM ESTUDANTES PORTUGUESES DO ENSINO SUPERIOR



CONTRIBUIÇÃO DA ATENÇÃO BÁSICA NA VIGILÂNCIA EM SAÚDE AMBIENTAL: QUAL O PAPEL DO AGENTE COMUNITÁRIO EM SAÚDE?

CONTROLE DA INCIDÊNCIA DE RADIAÇÃO SOLAR EM AVIÁRIOS COM VISTAS AO CONFORTO AMBIENTAL

CONTROLE SOCIAL EM SAÚDE NO ENSINO SUPERIOR EM BRASÍLIA – DF

DESPEJO DE ESGOTO NO RIO PARAÍBA DO SUL PELO CENTRO URBANO DA CIDADE DE CAMPOS DOS GOYTACAZES

ESTUDO COMPARATIVO DE MÉTODOS DE ANÁLISE DE IMAGENS PARA A DIFERENCIAÇÃO DE TECIDOS CÓLICOS

DIMENSIONANDO OS PROGRAMAS DE PÓS-GRADUAÇÃO QUE ABORDAM AS QUESTÕES AMBIENTAIS NO BRASIL

ECOLOGIA DA PAISAGEM PARA A AVALIAÇÃO DO PROJETO DE REDES ECOLÓGICAS

EDUCAÇÃO AMBIENTAL E VALORIZAÇÃO SOCIAL: CAPACITAÇÃO DE CATADORES DE COOPERATIVAS DE RECICLAGEM DE RESÍDUOS URBANOS

EFEITO DA SAZONALIDADE SOBRE OS PARÂMETROS FÍSICO-QUÍMICOS NA ÁGUA DO RESERVATÓRIO DE TUCURUI-PA



EFFECTS OF ORGANIC MATTER ON HEAVY METALS UPTAKE FROM POLLUTED SOIL BY WINTER WHEAT (TRITICUM L.)

ENDIA 2.0 – SISTEMA WEB DE GERENCIAMENTO DE INFORMAÇÕES E SUPORTE À EXTRAÇÃO DE CONHECIMENTO EM EXAMES DE ENDOSCOPIA DIGESTIVA ALTA

ENVIRONMENTAL MANAGEMENT PLANS FOR CONSTRUCTIONS SITES

ENVIRONMENTAL EDUCATION CITIZENSHIP AND SUSTAINABILITY

ERGONOMIA PSICOLÓGICA: O CUIDADO AOS CUIDADORES DA ÁREA DA SAÚDE

ESTUDO DA PERCEPÇÃO DE FUNCIONÁRIOS DE UMA CERTIFICADORA QUANTO À RECLAGEM DE LATAS DE ALUMÍNIO

ESTUDO DA PRESENÇA DO FUNGO ASPERGILLUS SP. EM AMBIENTE DE CIRCULAÇÃO PÚBLICA – ESTAÇÃO CIÊNCIA/PARQUE TECNOLÓGICO ITAIPU – BR

ESTUDO DE CASO: AVALIAÇÃO DA QUALIDADE DA ÁGUA DO RIBEIRÃO IPIRANGA (PINDAMONHANGABA-SP) VERSUS EDUCAÇÃO AMBIENTAL

ESTUDO DO PERFIL DO USUÁRIO DE TELEFONE CELULAR CONFORME A FORMA DE DESCARTE DOS TELEFONES E BATERIAS FORA DE USO



ESTUDO DO PERFIL DO USUÁRIO DE TELEFONE DE CELULAR MÓVEL CONFORME A FORMA DE TRANSPORTE

ESTUDO DOS AGLOMERADOS ESPACIAIS DO DENGUE NO MUNICÍPIO DE JOÃO PESSOA, BRASIL

ESTUDO DOS ÍNDICES DE SEGURANÇA PÚBLICA BASEADO NOS REGISTROS DAS OCORRÊNCIAS ATENDIDAS PELA POLÍCIA MILITAR DO ESTADO DO PARÁ UTILIZANDO LÓGICA FUZZY

ESTUDO DOS NÍVEIS DE CÁDMIO E CRÔMIO EM CABELO DE INDIVÍDUOS RESIDENTES NA REGIÃO DENOMINADA VOLTA GRANDE DO RIO XINGU-PA

ESTUDO MATEMÁTICO DO COMPORTAMENTO MECÂNICO DO CÓLON DESCENDENTE DE RATOS COM ANASTOMOSES E SOB AÇÃO DE CÂMARA HIPERBÁRICA

ETHNIC AND SOCIAL DIFFERENCES IN CHILDHOOD OBESITY COMPARISON OF ROMA AND NON-ROMA GROUPS IN SLOVAKIA

EVOLUÇÃO DA TEMPERATURA DO AR EM DUAS ÁREAS AMBIENTALMENTE DIFERENTES NO MUNICÍPIO DE BELÉM (PA)

EXPLORING AN INTERSECTING CORTICAL MODEL FOR ACCELERATING THE VISUALIZATION OF LEFT-VENTRICULAR SHORT-AXIS ECHOCARDIOGRAPHIC CINELOOPS



EXPLORING THE PULSE COUPLED NEURAL NETWORK FOR MAMMOGRAM PREPROCESSING:
A PRELIMINARY ASSESSMENT

GEOSPATIAL PREDICTION MODEL FOR MALARIA IN NIGERIA

GERONTOLOGIA: RESILIÊNCIA NO PROCESSO DE HOSPITALIZAÇÃO

HEALTH AND SAFETY IN WALKABLE NEIGHBORHOODS WITH REFERENCE TO TEHRAN IRAN

HOW TO MOTIVATE STUDENTS TO START PHARMACEUTICAL HEALTH CARE BUSINESS IN
RURAL AREAS IN UKRAINE

IMPACT OF MOLASSES AS A C-SOURCE IN BIOPRECIPITATION PROCESS OF HEAVY METALS IN
SATURATED ZONE

IMPACTOS AMBIENTAIS CAUSADOS PELO ROMPIMENTO DE BARRAGEM DE REJEITO DE UMA
FÁBRICA DE CAULIM EM BARCARENA-PA

IMPACTOS PROVOCADOS PELA DISPERSÃO DE LIMNOPERNA FORTUNEI (DUNKER 1857)
(MOLLUSCA BIVALVIA MYTILIDAE) NO BRASIL

IMPLEMENTATION OF A TRAINING MODEL ON CONSTRUCTION SITES USING MULTIMEDIA
KIOSKS



IMPOSEX EM MOLUSCOS MARINHOS: UM INDICADOR BIOLÓGICO DA POLUIÇÃO POR COMPOSTOS ESTÂNICOS (TBT/TPT) EM ESCALA GLOBAL

INDICADOR DE SUSTENTABILIDADE: AVALIANDO A GESTÃO DO DESENVOLVIMENTO LOCAL SUSTENTAVEL A PARTIR DA RELAÇÃO EFEITO-CAUSA-EFEITO

INTERPRETAÇÃO DE IMAGENS NO ESTUDO DA BACIA HIDROGRÁFICA DA HIDROVIA PARANÁ – PARAGUAI

JOGO ELETRÔNICO EDUCACIONAL – APRENDA BRINCANDO COMO RESPEITAR AS NORMAS DE TRÂNSITO: MODELAGEM E PROTOTIPAÇÃO

KNOWLEDGE ATTITUDE AND PRAXIS IN THE VIEWS OF PRIMARY HEALTH CARE STAFF

LANDFILL SETTLEMENT PREDICTION: AN EMPIRICAL MODEL BASED ON ARTIFICIAL NEURAL NETWORKS

LAVELS OF BUILDING DECONSTRUCTION PRELIMINARY APPROACH TO A DECISION SUPPORT CRITERIONS

LICENCIAMENTO AMBIENTAL DE PORTOS DE PEQUENO PORTE NA AMAZÔNIA

MANAGING INDONESIA'S HAZE IN SOUTHEAST ASIA



MAPEAMENTO AUTOMÁTICO DE LAUDOS MÉDICOS PARA EXTRAÇÃO DE CONHECIMENTO
NUMERICAL MODELING OF CURRENTS IN SANTOS BAY: COMPARISON WITH ACOUSTIC PRO-
FILER MEASUREMENTS
NURTURING ENVIRONMENTAL SENSITIVITY THROUGH DESIGN PROJECTS DONE BY HIGH
SCHOOL STUDENTS AND UNDERGRADUATE STUDENTS
O AMBIENTE MOODLE COMO PRÁTICA DOCENTE NOS CURSOS DE ENGENHARIA
O MECANISMO DE DESENVOLVIMENTO LIMPO E OS PROJETOS DE ENGENHARIA CIVIL
O PAPEL DA MARINHA DO BRASIL NA GESTÃO DA ÁGUA DE LASTRO: UM ESTUDO NA COSTA
NORTE
O PAPEL ESTRATÉGICO DAS ORGANIZAÇÕES DE SAÚDE
O SISTEMA NACIONAL DE SAÚDE PORTUGUÊS: PRESENTE E FUTURO
O USO DO CABELO COMO BIOINDICADOR DAS CONDIÇÕES NUTRICIONAIS DA POPULAÇÃO
DA CIDADE DE ALTAMIRA-PA
OTIMIZAÇÃO ENERGÉTICA EM PROCESSOS DE PRODUÇÃO
PERCEPÇÃO AMBIENTAL NA AMAZÔNIA: UM ESTUDO EM BELÉM/PA
PERSPECTIVAS FUTURAS DO DESIGN E DA PRODUÇÃO INDUSTRIAL NA AMÉRICA DO SUL



PLANEJAMENTO DO USO DO SOLO COMO MEDIDA DE DESENVOLVIMENTO SUSTENTÁVEL PARA A AGRICULTURA EM RELEVO COLINOSO: PROPOSTAS PARA O ENTORNO DO PARQUE ESTADUAL DO DESENGANO - DISTRITO DE MORANGABA CAMPOS DOS GOYTACAZES/RJ

PREDIÇÃO DO COMPORTAMENTO MECÂNICO DE SEGMENTOS DE ÍLEO TERMINAL DE RATOS POR MEIO DO MODELO SIGMOIDAL DE BOLTZMANN

PREDSYS MOBILE – SISTEMA PARA AUXÍLIO NA INDICAÇÃO DE PACIENTES PARA REALIZAÇÃO DE REPRODUÇÃO ASSISTIDA

PRODUÇÃO DE ETANOL A PARTIR DO AMIDO DE MANDIOCA HIDROLISADO POR AMILASES DE MALTE DE MILHO IMOBILIZADAS

PROGRAMA DE INSERÇÃO INSTITUCIONAL E RESPONSABILIDADE SÓCIO-AMBIENTAL DA PENÍNSULA - BARRA DA TIJUCA, RJ

PROPOSTA DE GESTÃO DOS RESÍDUOS SÓLIDOS URBANOS – CARACTERIZAÇÃO FÍSICA DOS RESÍDUOS SÓLIDOS DOMÉSTICOS PARA O MUNICÍPIO DE BARRA DE SÃO MIGUEL-AL: UM ESTUDO DE CASO

PROPOSTA DE SISTEMA DE GESTÃO DE RESÍDUOS QUÍMICOS - ESTUDO DE CASO: LABORATÓRIOS DE ENSINO DE QUÍMICA DO CEFET-AL



PROPOSTA DE UMA APLICAÇÃO SERVIDORA UTILIZANDO O PADRÃO DICOM
PROPOSTA ESTRATÉGICA DE UM MODELO DE GESTÃO PARA IMPLANTAÇÃO DA NORMA
ISO14001:2004 EM INSTITUIÇÕES DE ENSINO PROFISSIONALIZANTE UTILIZANDO COMO
ESTUDO DE CASO O LABORATÓRIO DE PLÁSTICOS
RADIOACTIVITY IN THE INDUSTRIAL EFFLUENT DISPOSED SOIL
RAZÕES PARA ADOÇÃO DE POLÍTICAS AMBIENTAIS NAS INDÚSTRIAS BRASILEIRAS:
IMPACTOS NA SUSTENTABILIDADE DA GESTÃO EMPRESARIAL
RECUPERAÇÃO DE ÁREA DEGRADADA PELA EXTRAÇÃO DE AREIA NO MUNICÍPIO DE
JACAREÍ-SP. AVALIAÇÃO DA RECUPERAÇÃO PELA ADIÇÃO DE RESÍDUOS ORGÂNICOS - COM-
POSTAGEM
REMOÇÃO DE CORANTE TÊXTIL POR ADSORÇÃO EM ZEÓLITA DE CINZAS DE CARVÃO
RESEARCH OF DISTRIBUTION AND PROTECTION COUNTERMEASURES OF BURIED WOOD OF
METASEQUOIA IN CHINA
RESISTÊNCIA AO USO DE EQUIPAMENTOS DE PROTEÇÃO INDIVIDUAL (EPIS)
RESPONSABILIDADE SOCIAL: UM ESTUDO DE CASO DA CELESC DISTRIBUIÇÃO S.A. -
AGÊNCIA REGIONAL DE FLORIANÓPOLIS/SC



REÚSO DE ÁGUA NA LAVAGEM DE ÔNIBUS: REVISÃO E ESTUDO DE CASO
SAFETY COMMUNICATION NETWORK: AN EFFECTIVE TOOL FOR ORGANIZATIONAL
COMMUNICATION
SISTEMA DE CONTROLE DE DENSIDADE DE CORRENTE PARA APLICAÇÃO EM PROCESSOS
ELETROLÍTICOS
SISTEMA INTEGRADO DE GESTÃO DE LABORATÓRIOS DE ENSAIOS ANALÍTICOS AMBIEN-
TAIS
STUDY OF CLIMATE CHANGE IN WEST-NORTHERN BORNEO
SUGAR CANE PRODUCTION SYSTEM MOST SUSTAINABLE IN TREE ROWS SYSTEMS
SUSTENTABILIDADE NA CONSTRUÇÃO CIVIL
TAXA DE CRIMINALIDADE COMO UM INDICADOR DA SUSTENTABILIDADE DO DESENVOLVI-
MENTO URBANO
THE BIODIVERSITY PROBLEM IN TEA-PRODUCTION: THE CASE OF FUJIAN PROVINCE CHINA
THE GLOBAL CHALLENGE TO PROMOTE RESPONSIBLE DEVELOPMENT
TREND OF CATCH AND COST OF FISH DAMAGE CAUSED BY FISHING GEARS IN SONGKHLA
LAKE THAILAND: 1977 - 2006



UM MODELO PARA ACESSO A DISPOSITIVOS BIOMÉDICOS DIRIGIDO A UMA ARQUITETURA ORIENTADA A SERVIÇO

UM SISTEMA PARA AUXILIAR NO PROCESSO DE MAPEAMENTO DE FORMULÁRIOS MÉDICOS PARA BASES DE DADOS ESTRUTURADAS

UMA DISCUSSÃO SOBRE O CONCEITO DE SEGURANÇA AMBIENTAL A PARTIR DA GUERRA DA ÁGUA EM COCHABAMBA BOLÍVIA

USO AGRÍCOLA DOS LODOS DE ESGOTOS PRODUZIDOS NAS ESTAÇÕES DE TRATAMENTO DE ESGOTOS DA REGIÃO METROPOLITANA DE CAMPINAS – SP – BRASIL: UMA QUESTÃO DE PLANEJAMENTO

USO DA ESPÉCIE SERRASALMUS SSP (PIRANHA) COMO BIOINDICADORA DE METAIS PESADOS NA REPRESA DE TUCURUÍ-PARÁ

VIRTUAL REALITY-BASED HOME SAFETY INSPECTION SYSTEM

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Bertholdo W. Salles	090	
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Bianca Espindola	105	
Bruna Bezerra	102	



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Carlos Antonio Berto Jr.	040	041	042	045	039
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Eduardo Fagundes Carvalho	112		
Eduardo Jorge de Brito Bastos	104	106	
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Erica Gomes Pereira	091	092	093
Evandro Luiz Zimmermann	102		
Everton Alvares Cherman	052	053	



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Fábio Warley da Silva Xavier	100									
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Jadson Queiroz da Silva	116						
James Robergé	002						
James Wolfer	002	006					
Jeffrey Soble	002						
João Cândido Fernandes	089						
João José Fagundes	049	051	052	053	083	084	085
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Joseph Harari	001	007	111						
Joylan Nunes Maciel	086								
Juliane da Silva e Silva	068	069	071	072	073				
Juliano Aparecido Alves	028								
Jung Hun Choi	004								
Juvenal Ricardo Navarro Góes	049	051	052	053	083	084	085		



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Karla Aguiar Kury	108	109
Karolien Vanbroekhoven	013	
Katherine dos Santos Borges	094	
Kelly das Graças Fernandes	070	
Krystyna Malinska	012	
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Leonilda Correia dos Santos	105	
Li Hailan	021	
Li Hongjun	021	
Liao Yushi	021	
Liliane dos Santos Machado	096	
Lise Barros Ferreira	095	
Liu Jingzhen	021	
Liu Shengxiang	021	
Liu Su	019	
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Luciana Miranda Cavalcante	115	116
Ludo Diels	013	
Luís Peres Azevedo	079	

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Luiz Felipe Coelho	102
Luiz Gonzaga Campos Porto	060



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M. Nasseh Tabrizi	005				
Magda Aparecida Salgueiro Duro	062	078			
Maksoel Agustin Krauspenhar Niz	083	084	085		
Manoel Imbiriba Junior	115				
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Maria Angélica F. Oliveira	047				
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Osíris Canciglieri Junior	081



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Paulo Roberto Cordeiro Leone	106			
Pedro José da Silva	054	055	056	057
Pedro Rafael Diniz Marinho	096			
Peter Anzenberger	003			
Protasio Ferreira e Castro	001	112		



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R. Narayanaswamy	018			
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Raul Ceretta Nunes	047			
Razieh Rezazadeh	024			
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Sandra Van Roy	013						
Sandro Filippo	082						
Sarawuth Chesoh	022						
Sérgio Noriaki Sato	107						
Sérgio Ricardo Lourenço	040	039	041	042	044	045	046
Sérgio Roberto dos Santos	095						
Sérgio Saraiva Nazareno dos Anjos	094						
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Thiago Pedro Vieira	102
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Vera Lucia Barbosa da Silva	058				
Verônica Costa Santos	115				
Vicente de Paula Rodrigues da Cunha Junior	087	088			
Vitor Rodrigues	031	032	033	034	035



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