

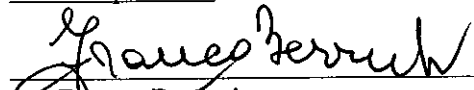
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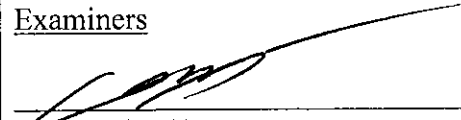

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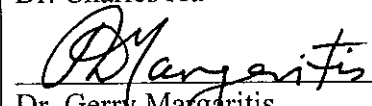
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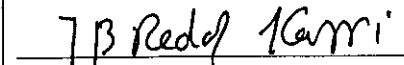
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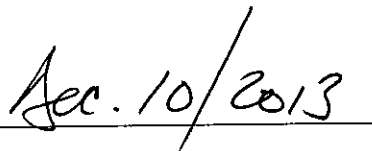
Francisco Sanchez Careaga

entitled:

**Hydrodynamics in Recirculating Fluidized Bed Mimicking the Stripper
Section of the Fluid Coker**

is accepted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Date


Dec. 10/2013


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0723 Information Science
0391 Journalism
0390 Landscape Architecture
0399 Library Science
0708 Mass Communications
0413 Music
0459 Speech Communication
0465 Theater

EDUCATION

0515 General
0514 Administration
0516 Adult and Continuing
0517 Agricultural
0273 Art
0282 Bilingual and Multicultural
0688 Business
0275 Community College
0727 Curriculum and Instruction
0518 Early Childhood
0525 Educational Psychology
0524 Elementary
0277 Finance
0519 Guidance and Counseling
0680 Health
0745 Higher
0520 History of
0278 Home Economics
0521 Industrial
0279 Language and Literature
0280 Mathematics
0522 Music
0998 Philosophy of
0523 Physical
0535 Reading
0527 Religious
0714 Sciences
0533 Secondary
0534 Social Sciences
0340 Sociology of
0529 Special
0530 Teacher Training
0710 Technology
0288 Tests and Measurements
0747 Vocational

LANGUAGE, LITERATURE, AND LINGUISTICS

Language
0679 General
0289 Ancient

0290 Linguistics
0291 Modern
0681 Rhetoric and Composition
Literature
0401 General
0294 Classical
0295 Comparative
0297 Medieval
0298 Modern
0316 African
0591 American
0305 Asian
0356 Australia, New Zealand, and Oceania
0352 Canadian (English)
0355 Canadian (French)
0360 Caribbean
0593 English
0311 Germanic
0312 Latin American
0315 Middle Eastern
0313 Romance
0362 Scandinavian and Icelandic
0314 Slavic and East European

PHILOSOPHY, RELIGION, AND THEOLOGY

0422 Philosophy
Religion
0318 General
0321 Biblical Studies
0319 Clergy
0320 History of
0322 Philosophy of
0469 Theology

SOCIAL SCIENCES

0323 American Studies
Anthropology
0324 Archaeology
0326 Cultural
0339 Medical and Forensic
0327 Physical
0304 Biography
0325 Black Studies
Business Administration
0310 General
0272 Accounting
0770 Banking
0454 Management
0338 Marketing
0385 Canadian Studies
Economics
0501 General
0503 Agricultural
0505 Commerce-Business

0508 Finance
0509 History
0510 Labor
0511 Theory
0358 Folklore
0366 Geography
0351 Gerontology
0733 Gender Studies
0737 Hispanic American Studies
History
0578 General
0579 Ancient
0581 Medieval
0582 Modern
0331 African
0332 Asia, Australia, and Oceania
0328 Black
0334 Canadian
0330 Church
0335 European
0336 Latin American
0333 Middle Eastern
0722 Military
0724 Russian and Soviet
0337 United States
0509 History of Science
0751 Jewish Studies
0398 Law
0750 Military Studies
0730 Museology
0740 Native American Studies
Political Science
0615 General
0616 International Law and Relations
0617 Public Administration
0814 Recreation
0452 Social Work
Sociology
0626 General
0627 Criminology and Penology
0938 Demography
0631 Ethnic and Racial Studies
0628 Individual and Family Studies
0629 Industrial and Labor Relations
0703 Organizational
0630 Public and Social Welfare
0700 Social Structure and Development
0344 Theory and Methods
0709 Transportation
0999 Urban and Regional Planning
0453 Women's Studies

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- 0285 Agronomy
- 0475 Animal Culture and Nutrition
- 0476 Animal Pathology
- 0792 Fisheries and Aquaculture
- 0359 Food Science and Technology
- 0478 Forestry and Wildlife
- 0471 Horticulture
- 0479 Plant Culture
- 0480 Plant Pathology
- 0777 Range Management
- 0481 Soil Science
- 0746 Wood Technology

Biology

- 0306 General
- 0287 Anatomy
- 0433 Animal Physiology
- 0715 Bioinformatics
- 0308 Biostatistics
- 0309 Botany
- 0379 Cell
- 0329 Ecology
- 0353 Entomology
- 0369 Genetics
- 0793 Limnology
- 0410 Microbiology
- 0307 Molecular
- 0317 Neuroscience
- 0416 Oceanography
- 0718 Parasitology
- 0719 Physiology
- 0817 Plant Physiology
- 0778 Veterinary Science
- 0720 Virology
- 0472 Zoology

Biophysics

- 0786 General
- 0760 Medical

EARTH SCIENCES

- 0725 Atmospheric Sciences
- 0425 Biogeochemistry
- 0996 Geochemistry
- 0370 Geodesy
- 0372 Geology
- 0373 Geophysics
- 0388 Hydrology
- 0411 Mineralogy
- 0345 Paleobotany
- 0426 Paleoecology
- 0418 Paleontology
- 0985 Paleozoology

- 0427 Palynology
- 0368 Physical Geography
- 0415 Physical Oceanography
- 0799 Remote Sensing

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Environmental Sciences

- Health Sciences
- 0566 General
- 0300 Audiology
- 0567 Dentistry
- 0350 Education
- 0766 Epidemiology
- 0769 Health Care Management
- 0758 Human Development
- 0982 Immunology
- 0564 Medicine and Surgery
- 0347 Mental Health
- 0569 Nursing
- 0570 Nutrition
- 0380 Obstetrics and Gynecology
- 0354 Occupational Health and Safety
- 0992 Oncology
- 0381 Ophthalmology
- 0571 Pathology
- 0419 Pharmacology
- 0572 Pharmacy
- 0573 Public Health
- 0574 Radiology
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- 0382 Rehabilitation and Therapy
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- 0386 Home Economics

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- 0749 Agricultural
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- 0487 Biochemistry
- 0488 Inorganic
- 0738 Nuclear
- 0490 Organic
- 0491 Pharmaceutical
- 0494 Physical
- 0495 Polymer
- 0754 Radiation
- 0405 Mathematics

Physics

- 0605 General
- 0986 Acoustics
- 0606 Astronomy and Astrophysics

- 0608 Atmospheric Science
- 0748 Atomic
- 0611 Condensed Matter
- 0607 Electricity and Magnetism
- 0798 Elementary Particles and High Energy
- 0759 Fluid and Plasma
- 0609 Molecular
- 0610 Nuclear
- 0752 Optics
- 0756 Radiation
- 0753 Theory
- 0463 Statistics

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- 0346 Applied Mechanics
- 0800 Artificial Intelligence
- 0984 Computer Science
- 0791 Energy

Engineering

- 0537 General
- 0538 Aerospace
- 0539 Agricultural
- 0540 Automotive
- 0541 Biomedical
- 0542 Chemical
- 0543 Civil
- 0544 Electronics and Electrical
- 0775 Environmental
- 0546 Industrial
- 0547 Marine and Ocean
- 0794 Materials Science
- 0548 Mechanical
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- 0551 Mining
- 0552 Nuclear
- 0549 Packaging
- 0765 Petroleum
- 0771 Robotics
- 0554 Sanitary and Municipal
- 0790 System Science
- 0428 Geotechnology
- 0796 Operations Research
- 0795 Plastics Technology
- 0994 Textile Technology

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- 0384 Behavioral
- 0622 Clinical
- 0633 Cognitive
- 0620 Developmental
- 0623 Experimental
- 0624 Industrial
- 0625 Personality
- 0989 Physiological
- 0349 Psychobiology
- 0632 Psychometrics
- 0451 Social