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Angel Madrid, Ph.D. in Nuclear Engineering, University of California,
Los Angeles, U.S.A.

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Education

- Sep 2015 – Oct 2015* **edX, BerkeleyX, University of California, Berkeley, Berkeley, U.S.A.**
Certificate, ColWri2.1x Course: How to Write an Essay
Berkeley, California, United States
- Mar 2013 – Aug 2013* **edX, HarvardX, Harvard University, Cambridge, Massachusetts, U.S.A.**
Certificate, ER22x Course: Justice
Cambridge, Massachusetts, United States
- Jan 2013 – Jun 2013* **edX, HarvardX, Harvard University, Cambridge, Massachusetts, U.S.A.**
Certificate, HLS1x Course: Copyright
Cambridge, Massachusetts, United States
- Jan 1994 – Jan 1994* **Ministerio de Educación y Ciencia (Ministry of Education and Science), Madrid, Spain**
Doctor Ingeniero Industrial (Ph.D.), Degree Conferred in January, 1994, Ingeniería Industrial (Plan 1957), Sección Técnicas Energéticas (Energy Systems Engineering Principles, Analysis and Design),
Madrid, Spain
- Jul 1979 – Dec 1980* **University of California, Los Angeles, California, U.S.A.**
Ph.D., Nuclear Engineering, Degree Conferred in December, 1980,
Los Angeles, California, United States
- Oct 1978 – Jun 1979* **University of California, Los Angeles, California, U.S.A.**
Student Leave of Absence,
Los Angeles, California, United States
- Sep 1974 – Sep 1978* **University of California, Los Angeles, California, U.S.A.**
Ph.D. Dissertation, Nuclear Engineering: Research Work and Major Field/Qualifying Examinations,
Los Angeles, California, United States
- Sep 1973 – Aug 1974* **University of California, Los Angeles, California, U.S.A.**
Student Leave of Absence,
Los Angeles, California, United States
- Sep 1972 – Aug 1973* **University of California, Los Angeles, California, U.S.A.**
Nuclear Engineering: Minor Field in Thermodynamics,
Los Angeles, California, United States

- Jan 1969 – Aug 1972* **University of California, Berkeley, California, U.S.A.**
 M.S., Nuclear Engineering: Minor Fields in Nuclear Reactor Kinetics and Design, and
 Materials Science, Degree Conferred in June, 1978,
 Berkeley, California, United States
- Oct 1961 – Jun 1966* **Universidad Politécnica de Madrid (Polytechnic University of Madrid), Escuela
 Técnica Superior de Ingenieros Industriales**
 Ingeniero Industrial (B.Sc. and M.S.), Degree Conferred in June, 1972, Ingeniería
 Industrial (Plan 1957), Sección Técnicas Energéticas (Energy Systems Engineering
 Principles, Analysis and Design),
 Madrid, Spain

Thesis

- Angel Madrid: *An Intermediate Model on Intragranular Fission Gas Behavior During Steady State Irradiation of
 LMFBR Uranium Carbide Nuclear Fuel.* 12/1980, Degree: Ph.D. in Nuclear Engineering, University of
 California, Los Angeles, California, U.S.A., Supervisor: Prof. David Okrent and Prof. Ahmed R. Wazzan,
 Committee Co-Chairmen
- Angel Madrid: *Design Analysis of a Sea Water Desalination Plant Recovering the Exhaust Gases Thermal Energy
 from a Gas Turbine.* 09/1971, Degree: B.Sc. and M.S. in Energy Systems Engineering Principles, Analysis
 and Design (Ingeniería Industrial - Plan 1957, Sección Técnicas Energéticas), Universidad Politécnica de
 Madrid, Escuela Técnica Superior de Ingenieros Industriales (E.T.S.I.I.), Madrid, Spain., Supervisor: Mr. John
 B. Kelley, BURNS & ROE Engineers (Spain), Vice President and appointed E.T.S.I.I. Faculty Members.

Research Experience

Statistics

<i>RG Score</i>	19.21
<i>Publications</i>	41
<i>Reads</i>	3,844
<i>Citations</i>	8

Awards & Grants

- Jun 1991* Grant: Feasibility Assessment of Using IR Thermography in Stone Conservation
- Mar 1989* Grant: Segundo Encuentro de Científicos Españoles Residentes en el Extranjero (Second
 Meeting of Spanish Scientists Residing Abroad), Madrid, Spain
- Sep 1983* Grant: Development of Nuclear Safety Computer Programmes
- Sep 1982* Grant: Development of Accident Sequences in Fusion Reactors
- Jul 1979* Grant: Academic Apprentice Research Program
- Nov 1975* Award: American Nuclear Society (ANS) Student Paper Presentation Prize, ANS

National Winter Meeting

- Oct 1974* Grant: Academic Apprentice Research Program
- Jul 1973* Grant: Transient Analysis of LMFBR Oxide Fuel Elements During Accidents
- Sep 1971* Grant: Del Amo Foundation Fellowship
- Sep 1969* Grant: Formación de Profesorado de Enseñanza Técnica Superior en Materias Tecnológicas (Higher Technical School Academic Apprenticeship Program)
- Mar 1966* Grant: Practical Training in Engineering
- Aug 1965* Grant: Practical Training in Engineering
- Feb 1965* Grant: Bourse de Stage de Coopération Technique (Technical Cooperation Sojourn Grant)

Skills & Activities

Skills Probabilistic Risk Analysis, Thermal Imaging, Thermal Physics, Applied Thermodynamics, Infrared Thermography, Applied Mathematics, Heat Transfer, Tokamak Impurity Control Safety Analysis, Nuclear Reactor Safety Analysis, Nuclear Fuel-Element Fission-Gas Behavior Modeling, Nuclear Fuel-Element Behavior and Safety Analysis, Reliability and Safety Analysis, Nuclear Power Plant Design and Safety Analysis, Nuclear Power Plant Radioactive Waste Disposal, Nuclear Radiation Shielding, Thermal Engineering, Localized Isometric Muscle Strength Testing, Whole-Body Static Muscular Strength Testing, Musculoskeletal Dysfunction Quantification, Occupational Biomechanics, English/French/Spanish Technical Translations, English/Spanish Literary Translations, Electrical Power Engineering, Nuclear Engineering, History of Science, Human-Computer Interaction, History of Western Music, Musical Acoustics, Materials Science, Acoustics, Academic Writing, Thermography, Applied Physics, Energy Economics, History of Ideas, Electrical Engineering, Tokamak, Risk Assessment, Renewable Energy and Environment Protection, Science, Technology & Society Studies (STS), Energy Engineering, Concepts, Energy Efficiency, Renewable Energy, Safety Engineering, Analysis, IR, Renewable Energy Technologies, Mathematical Analysis, Energy, Biophysics, Thermodynamics, Applied Statistics, Biomedical Engineering, Statistics, Corrosion, Science 2.0 and Open Access, Classical Music, Music History, Music Education, Ethnic Music, Non-Equilibrium Thermodynamics, Distillation Plant, Biomechanics, Spinal Biomechanics, Cultural Heritage, Ankle Biomechanics, Statistical Thermodynamics, Distillation, Injury Biomechanics, Biomedical Ethics, Biomedical Imaging, Engineering Thermodynamics, Nuclear proliferation, Nuclear Fusion, Biomedical Science, Nuclear Fission, Thermoelectricity, Desalination, Nuclear Safety, Protection Of Cultural Heritage, Biomedical Statistics, Reliability, Singing, Copyright, Spanish Literature, Educational Theatre, Theater Directing, Diffusion Studies, Heat Conduction, Higher Education Teaching, Mathematics Teaching, Science Teaching, Remedial Teaching, Language Teaching, Wikipedia

Languages English, French, Italian, Portuguese, Spanish

Scientific Memberships American Nuclear Society (ANS), Los Angeles Section, ANS Student Chapter, 1975

Sociedad Ibérica de Termología, (Iberian Society of Thermology), Founding Member, 1988

Sociedad Española de Medicina Pericial (S.E.M.P.), (Spanish Society of Legal Medicine Experts), Founding Member, 1996

Interests English/Spanish/English Translations
French/English/Spanish Translations
History of Science
History of Western Civilization
World Art History
History of Western Music
Music Theory
Ethnic Music
Musical Performance
Musical Acoustics
History of Western Theater
Theatrical/Operatic Performances
Worldwide Literature
Copyright Law
Civil Law
Labor Law
Commercial Law
Company Law
Administrative Law
Criminal Law
Constitutional Law
Ethics

Publication Highlights

- A. Madrid: *Quantitative evaluation of aging in bearings and electric brushes using infrared thermography*. 1992
Quantitative InfraRed Thermography, Châtenay-Malabry, France; 07/1992, DOI:10.21611/qirt.1992.025
- Angel Madrid: *Quantitative evaluation of cavities and inclusions in solids using IR thermography*. Proceedings of SPIE - The International Society for Optical Engineering 04/1991; 1467:322-336., DOI:10.1117/12.46460
- Angel Madrid: *Using IR thermography for detecting and diagnosing cracking in concrete dams*. Proceedings of SPIE - The International Society for Optical Engineering 07/1990; 1341:110-126., DOI:10.1117/12.23085
- Angel Madrid, G. Apostolakis, R.W. Conn: *On the Development of Accident Sequences Involving Tokamak Impurity Control Systems*. Nuclear Technology/Fusion 09/1983; 4(2):1135-1140., DOI:10.13182/FST83-A23011
- Angel Madrid: *Using IR thermography for quantifying failure rates of electric power network components*. Proceedings of SPIE - The International Society for Optical Engineering 07/1990; 1341:24-45., DOI:10.1117/12.23077

Books

Book Chapters

Journal Publications

Angel Madrid: *Quantitative evaluation of cavities and inclusions in solids using IR thermography*. Proceedings of SPIE - The International Society for Optical Engineering 04/1991; 1467:322-336., DOI:10.1117/12.46460

Angel Madrid: *Using IR thermography for detecting and diagnosing cracking in concrete dams*. Proceedings of SPIE - The International Society for Optical Engineering 07/1990; 1341:110-126., DOI:10.1117/12.23085

Angel Madrid: *Using IR thermography for quantifying failure rates of electric power network components*. Proceedings of SPIE - The International Society for Optical Engineering 07/1990; 1341:24-45., DOI:10.1117/12.23077

Angel Madrid: *On the estimation of hardware failure rates using IR thermography*. Proceedings of SPIE - The International Society for Optical Engineering 04/1990; 1313:30-46., DOI:10.1117/12.21906

Angel Madrid: *Infrared Thermography as an Aid in Quantitative Reliability and Risk Analyses*. Proceedings of SPIE - The International Society for Optical Engineering 06/1988; 918:40-60.

Angel Madrid, G. Apostolakis, R.W. Conn: *On the Development of Accident Sequences Involving Tokamak Impurity Control Systems*. Nuclear Technology/Fusion 09/1983; 4(2):1135-1140., DOI:10.13182/FST83-A23011

Angel Madrid, D. Okrent, A.R. Wazzan: *MUSIC: Intragranular fission gas behavior model for LMFBR UC Fuel*. Transactions of the American Nuclear Society 11/1981; 39:416-417.

Angel Madrid, D. Okrent, A.R. Wazzan: *A Simplified Model for Fission Gas Behavior in Uranium Carbide Fuel*. Transactions of the American Nuclear Society 11/1975; 22:234-235.

Angel Madrid, Y. Sun, J.O. Cermak, D. Okrent: *On the Failure Modes of Irradiated LMFBR Fuel Pins during Transients*. Transactions of the American Nuclear Society 06/1974; 18:203-204.

Patents

Conference Proceedings

Angel Madrid: *Quantitative Evaluation of Aging in Piping Using IR Thermography*. 8th International Conference on Thermal Engineering and Thermogrammetry, Budapest, Hungary; 06/1993

Angel Madrid, Richard Coffman, William Ginell: *Doping Detection and Characterization in Thermal Insulators Using IR Thermography*. 8th International Conference on Thermal Engineering and Thermogrammetry, Budapest, Hungary; 06/1993

Angel Madrid, Richard Coffman, William Ginell: *Air Void Detection and Characterization in Thermal Insulators Using IR Thermography*. 8th International Conference on Thermal Engineering and Thermogrammetry, Budapest, Hungary; 06/1993

A. Madrid: *Quantitative evaluation of aging in bearings and electric brushes using infrared thermography*. 1992 Quantitative InfraRed Thermography, Châtenay-Malabry, France; 07/1992, DOI:10.21611/qirt.1992.025

- Angel Madrid: *Evaluation of Aging in Cracked/Voided Piping Using IR Thermography*. 1992 ASNT (American Society for Nondestructive Testing) Spring Conference, "NDE - The Vehicle to the Future", Orlando, Florida, U.S.A.; 04/1992
- Angel Madrid, José L. Madrid: *Feasibility of Using Active IR Thermography in Pain-Related Clinical Evaluation*. First European Conference on Pain Research, EuroPain, Brussels, Belgium; 12/1991
- Angel Madrid: *Evaluation of Aging in Piping Using IR Thermography*. 1991 ASNT (American Society for Nondestructive Testing) Fall Conference, "50 Years of Improved Safety and Reliability through NDT", Boston, Massachusetts, U.S.A.; 09/1991
- Angel Madrid: *On the Diagnosis of Aging Failures Using Infrared Thermography*. Proceedings of the International Conference on Probabilistic Safety Assessment and Management (PSAM-1991), Beverly Hills, California, U.S.A.; 02/1991
- Angel Madrid: *Infrared Thermography As An Aid In Quantitative Reliability And Risk Analyses*. Applications of Infrared Technology, London, England; 06/1988, DOI:10.1117/12.945601
- Angel Madrid, Sergio Guarro: *Current Issues and Trends on the Use of Simulation in Nuclear Power Plant Disturbance Analysis Systems*. International Conference on Power Plant Simulation, Cuernavaca, Morelos, Mexico; 11/1984
- Angel Madrid, G. Apostolakis: *On the development of accident sequences involving tokamak impurity control systems*. 5th Topical Meeting on Technology of Fusion Energy, Knoxville, TN, U.S.A.; 04/1983

Technical Reports

- Angel Madrid: *Feasibility Assessment of Using Infrared Thermography in Stone Conservation*. Affiliation: The J. Paul Getty Trust
- William E. Kastenberg, Edmund Rumble, Angel Madrid, et al: *Transient Analysis of LMFBR Oxide Fuel Elements During Accidents*. Report number: UCLA-ENG-7468, Affiliation: University of California, Los Angeles
- James N. Landis, Angel Madrid: *Testimony of Applicant's Witness, James N. Landis*. Report number: Administrative Proceeding File N° 3-1476, "In the Matter of American Electric Power Company Inc.", Affiliation: U.S. Securities and Exchange Commission
- James N. Landis, Angel Madrid: *Exhibits Offered in the Course of Testimony by James N. Landis*. Report number: Administrative Proceeding File N° 3-1476, "In the Matter of American Electric Power Company Inc.", Affiliation: U.S. Securities and Exchange Commission
- J. Ruzek, Angel Madrid, et al: *Modesto Irrigation District. Power Supply Study 1972-1990. Report #7509. Bechtel Corporation, San Francisco, California, U.S.A.*