



INSTITUTE FOR PURE AND  
APPLIED PHYSICAL SCIENCES. 0360

DIRECTOR  
LU J. SHAM

ASSOCIATE DIRECTOR  
C. FRED DRISCOLL

James Acord, Artist  
P.O. Box 159  
Richland, WA 99352

9500 GILMAN DRIVE  
LA JOLLA, CALIFORNIA 92093-0360  
FAX: (619) 534-7649

January 25, 1995

Dear Mr. Acord:

This department is considering Dr. Asmus for merit to Research Physicist, Step IV effective July 1, 1995. For this purpose, the University of California requires that we demonstrate the high quality of the individual's research and creative activities. We would appreciate it if you would assist us by providing a frank assessment of the significance of Dr. Asmus' research and of his professional standing.

It is my hope that you will be able to provide a critical evaluation of Dr. Asmus' work rather than general statements of uncritical praise. To aid you, I am enclosing a copy of his curriculum vitae.

I realize that this is an extra burden to impose upon you. I apologize for this but the University of California system relies very heavily upon the evaluation of academic members by outside reviewers. Under University of California policy, the identity of authors of letters of evaluation which are included in the personnel review files will be held in confidence. A candidate may, upon request and at certain prescribed stages of the academic personnel review process, be provided access to such letters in redacted form. Redaction is defined as the removal of identifying information (including name, title, institutional affiliation, and relationship to the candidate) contained either at the top of the letterhead or within and below the signature block of the letter of evaluation.

The full text of the body of your letter will therefore be provided to the candidate if so requested. Thus, if you provide any information that tends to identify you in the body of the letter that information may become available to the candidate. If you wish, you may provide a brief factual statement regarding your relationship to the candidate at the end of your letter but below the signature block. This brief statement will be subject to redaction and will not be made available to the candidate.

Although we cannot guarantee that at some future time a court or governmental agency will not require the disclosure of the source of confidential evaluations in University of California personnel files, we can assure you that the University will endeavor to protect the identity of authors of letters of evaluation to the fullest extent allowable under the law.

Sincerely,

*L. J. Sham*  
Lu J. Sham, Director

LJS:dlb  
Enclosures

*know any other  
sculptors who get  
mail like this??*



JOHN F. ASMUS

(Residence)

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(Office)

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(Laboratory)

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Scripps Institution of Oceanography

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(619) 534-2884

534-5332 (fax)

#### EDUCATION

BS/Electrical Engineering, Caltech, 1958

MS/Electrical Engineering, Caltech, 1959

Ionospheric Studies, Tech. Univ. Copenhagen, 1960

PhD/Physics & Quantum Electronics, Caltech, 1965

(Thesis advisers were Roy Gould and Nicholas George.)

#### FULL-TIME POSITIONS

1975-Present, Research Physicist, Univ. of Cal. S.D.

Taught courses in lasers, laser applications, nonlinear optics, and holography under the aegis of EECS and APIS Depts. as well as individual lectures in art conservation technology in the Visual Arts Dept. Guided graduate students in thesis research and undergraduate students in independent research in cross-disciplinary art/science fields such as Benin bronze nuclear isotopes, photoacoustic spectroscopy of artworks, and laser effects in theater. Currently conducting research on a superbright plasma pinchlamp for the destruction of toxic substances under the sponsorship of Cal EPA and So. Cal. Edison (earlier support from ONR and AFOSR). Sponsored research projects in computer image enhancement include the Mona Lisa (CBS News), Lascaux paintings (Nat. Sci. Foundation/Peabody Mus.), Rembrandt self portraits



(IBM), Giulio Romano fresco (Arecon), Pordenone fresco (Arecon), and OEOB stencil designs (Office of the President). Sponsored research in laser surface divestment include Venetian sculpture (S.H. Kress/NEA/Int. Fund Mon./Friends of Venice, Inc.), in-situ laser conservation of Etruscan artifacts (Nat. Mus. Act/Smithsonian), Cal. Cap. Dome and Rotunda (Cal. GSA), Ming Dynasty statues (Seattle Art Museum), Warships (Long Beach Naval Shipyard), Metal artworks (Franklin Mint), Serbian icons (Balboa Art Conservation Center), and whale branding (Bureau of Marine Mammals). Photoacoustic spectroscopy of paintings (Fleet Foundation). Sponsored research in ultrasonic sounding of Vasari wall painting (S.H. Kress Foundation/Hammer Foundation). Co-founder, Center for Art/Science Studies. Together with UCSD consultants (G. Stout and R. Buck), joined with the Putnam Foundation to found the Balboa Art Conservation Center.

1973-1974, Lecturer, Univ. of Cal, Davis

Taught courses in laser theory and applications in the Dept. of Applied Sciences. Delivered individual lectures in art conservation technologies at UCD Laboratory for Art Conservation.

1971-1973, VP, Board Member, Science Applications Internat.

Managed 30-scientist office. Developed corporate business in military laser weapons programs (\$50M). As a consultant (1973-present) assisted corporation in entering chemical weapons defense programs, an annual business level of \$1.4B (1993), and Fortune 500 status.

1969-1971, Staff Member, Institute for Defense Analyses

Provided staff support to the Director of Defense Research and Engineering, Advanced Research Projects Agency (ARPA), Presidential Science Adviser, and Defense Intelligence Agency on technology assessment. Organized and ran monthly meetings involving as few as 10 and as many as 500 scientists, engineers, military officers, and managers to review scientific research in aerospace fields within the USA, USSR, and NATO. Reported meeting results to DoD (and sometimes to Congressional Committees), evaluated ongoing programs, and provided recommendations. Generated Commerce Business Daily announcements, Requests for Proposals, and resulting proposal evaluations for about \$27M p/a in ARPA programs. Visited virtually all aerospace contractors to monitor progress and collect information. Together with P. Kelley (MIT) and K. Watson (UCB) developed plans for a National Laser Laboratory (at the request of Presidential Science Adviser, E.E. David) which a decade later came into being as the SDIO ("Starwars Office").

1964-1969, Laser Dept. Manager, General Atomic

Created a laser program at GA and managed a department of 10 scientists and engineers. Worked on the ORION nuclear-propulsion



deep-space exploration concept. Performed research on the CASABA/HOWITZER directed nuclear weapon. Developed the highest power laser in existence in 1965 (2 billion watts) and employed it to produce laboratory micrometeorites at a world-record velocity of 120,000 MPH. Studied the effects of meteorites on spacecraft. Produced the first data on laser-produced damage to aerospace vehicles. Performed feasibility experiments on isotope separation by lasers for Gulf Oil Corp. Studied the feasibility of a laser lunar miner for NASA/Bureau of Mines. Demonstrated laser-induced coal gassification and oil shale refining for Gulf Oil Corp.

#### PERSONAL INFORMATION

Born: January 20, 1937; Chicago, IL

Primary Education: San Diego, CA, Public Schools

California Scholarship Federation

American Legion Speech Award (Medal, Cash Award)

Boy Scout, Explorer Scout

Varsity Letter (Rifle Team)

Band/Orchestra (Trombone)

Radio Amateur Operator (Ham)

Married: 1963

Wife: Barbara (Flaherty) Asmus

MA/Music, Northwestern Univ., 1957

Winner, Met Opera Auditions (Midwest Region, 1957)

Portland Light Opera Lead Performances

Soloist, Portland Symphonic Chorale

Soloist at Alan Hovhaness Premiers

Public School Teacher (Music, English), 15 yrs.

Daughter: Joanne (Asmus) Barron

BA/History, UCSD, 1988

Restaurant Owner and CPA

Daughter: Rosemary Asmus

BA/Education, Lloyla Marymount Univ., 1989

5th Grade Teacher, Los Angeles (Watts)

Memberships (Past and Present)

Caltech Alumni Assn. (Life Member)

Common Cause

Smithsonian Associates

Friends of the UCSD Libraries

Southern California Karate Assn.

Southern California Sports Car Club

American Assn. Advancement Science

American Assn. Physics Teachers

SPIE (Also, Imaging Subgroup)

IEEE (Formerly Inst. Radio Eng.)

AIC (American Institute for Conservation)



IIC (International Institute for Conservation)  
WAAC (Western Association for Art Conservation)  
Bay Area Art Conservation Guild  
Nat. Trust for Hist. Pres.  
Nat. Geo. Soc.  
Friends of Venice, Inc.  
Venice Society (Int. Fund for Mon.)  
Electronic Imaging Association  
Knight of the Holy Sepulchre  
DDR&E Special Advisory Group on Optical Masers  
American Physical Society  
UCSD Chancellor's Associates  
Council: UCSD Catholic Community

#### Languages

English: Mother Tongue  
Spanish: Rudimentary  
Danish: Was fluent, 1960-61  
German: Rudimentary, 1973-75 (Tech. Reading Exam, 1961)  
French: Rudimentary, 1973 and 1985 (Reading Exam, 1962)  
Italian: Fluent, 1977-1991  
Chinese: Rudimentary, 1989-90

#### ADVISORY PANEL POSITIONS

1970-1973, Special Group on Optical Masers (SGOM)  
DoD Advisory body for the coordination of all Federally-funded Laser R&D.

1970-1973, JASON Panel  
DDR&E (Director Defense Research & Engineering) Summer Study Panel to address strategic issues such as ASAT, ABM, SST, SSC, etc.

1985-1990, Advanced Light Source Users Panel  
LBL (Lawrence Berkeley Laboratory) Advisory Panel on the Advanced Ultraviolet Synchrotron Source.

#### CONSULTING AND PART-TIME EMPLOYMENT

1954-1964, US Naval Ordnance Laboratory, Corona, CA  
Worked on design and testing of first US guided missiles (Bat, Sparrow, Sidewinder). Designed, tested, and operated ionospheric sounding RADAR at Tech. Un. of Copenhagen to monitor Soviet nuclear weapons tests and ballistic missile launches (1960-1).

1971, Los Alamos National Laboratory, Los Alamos, NM  
Consulted for the Associate Director (K. Boyer) on the design of



the ANTARES laser and the ROVER deep-space explorer.

1971-72, Ente Nazionale Idrocarburi, Rome, Italy  
Produced in-situ, life-sized archival holograms of Venetian statues (Prof. Urbani).

1972, TRW, Redondo Beach, CA  
Marketing of art holograms (Dr. Wuerker).

1973, U. Pietra Dura, Florence, Italy  
Laser-cleaned Donatello prophet from the Duomo (Prof. Galli).

1973, San Salvi Church, Florence, Italy  
Laser removal of glue facing from fresco (Prof. Dini).

1973, Victoria and Albert Museum, London, UK  
Laser stone-cleaning tests for environmental exposure (Mr. Hempel).

1973, IRPA (Royal Inst. Artistic Patrimony), Brussels, Belgium  
Laser-cleaning tests of lead sarcophagus (Mr. Sneyers).

1973, Bavarian Nat. Museum, Munich, Germany  
Laser-divestment tests on polychrome woodcarvings (Dr. Wackernagel).

1974, Lawrence Livermore National Laboratory, Livermore, CA  
Designed and tested X-ray diagnostics for NOVA X-ray Laser (Dr. E. Teller).

1975, The J.P. Getty Museum, Malibu, CA  
Produced holograms of Greek antiquities for use at Sutton Place (Mr. Rinne).

1975, Fort. del Basso, Florence, Italy  
Ultrasonic detachment mapping in San Salvi fresco (Prof. Baldini).

1976, Istituto Centrale del Restauro, Rome, Italy  
Conservation work on frescos of the Lower Church of the Basilica of St. Francis of Assisi (Prof. Urbani).

1977, Palazzo Ducale, Venice, Italy  
Laser-divestment of capital (Prof. R. Padoan).

1977, The J.P. Getty Museum, Malibu, CA  
Laser-divestment of marble Roman head (Dr. Twilley).

1978-85, Maxwell Laboratories, Inc., San Diego, CA  
Chief Scientist/Acting Laser Department Manager (20 scientists and



engineers). Responsible for managing \$5M in contracts for the design and evaluation of the world's most powerful ultraviolet lasers. Was also involved in the development of X-ray lithography system (with IBM), robot/flashlamp aircraft depainting system (with McClellan AFB), flashlamp food processing and the founding of Foodco (with General Foods Corp.), flashlamp-cleaning of the Dallas County Courthouse, flashlamp-cleaning of Arches National Park pictograph (NPS), laser-cleaning tests on the US Capital Building (Mr. G. White), laser-cleaning tests on white stripes on Philae stones (Prof. Saleh/Mr. White/UNESCO), X-ray diagnostics for underground nuclear weapons tests (DOE), X-ray laser weapon lethality tests (DNA), X-ray laser commercial marketing study (Princeton Un.), laser-removal of graffiti from NYC monuments (Commissioner Norton), laser-cleaning of lead coins (Louvre Mus.), laser-cleaning of silver coins (Treasure Salvors, Inc.), laser decontamination of ANTARES laser to recover original performance (Los Alamos), and flashlamp destruction of chemical warfare agents (Aberdeen Proving Grounds). During tenure as Chief Scientist and consultant, corporate business grew from \$13M to \$73M p/a.

1982, Carrara Marble, Inc., Los Angeles, CA  
Restored South African granite in lobby of Warner Center in Canoga Park (Mr. Caruso).

1983, National Geographic Magazine, Wash., D.C.  
Edited laser and holography manuscripts (Mr. Schneeberger).

1985, Argot, Inc., Rochester, NY  
Flashlamp treatment of X-ray fusion laser at Laboratory for Laser Energetics, Univ. of Rochester (Mr. Gutacker).

1985, Universal Restoration, Inc., Washington, D.C.  
Flashlamp removal of creosote from ALCOA plant in Englewood, NJ (Mr. Eisenberg)

1984-86, Virginia Polytechnic Institute, Blacksburg, VA  
Thesis Adviser/Lecturer in Food Technology Department on xenon flashlamp sterilization of foods and packaging (Prof. Costa).

1986, Jaycor, Inc., San Diego, CA  
Laser weapons-effects survey (Dr. F. Felber).

1987, Bluesword, Inc., NY, NY  
Computer image enhancement of possible Titian painting.

1988, Vasari Trust, Monterey, CA  
Computer image enhancement of Madonna dell Divino Amore by Raphael (Ms. C. DePetris).



1988, Pulitzer Estate, Lausanne, Switzerland  
Computer image enhancement of Isleworth Mona Lisa (Mr. F. Diday).

1988, Arecon, srl., Padova, Italy  
Laser-divestment of facade of S. Lorenzo in Vicenza (Arch. Calcagno).

1989, Xian EMIT, Xian, PRC  
Laser-divestment of Qin-Dynasty polychrome terra cotta treasure trove artifacts (Mr. Wen Rei-Tang).

1989, Xian EMIT, Xian, PRC  
Laser-divestment of 12th C. Buddhist artifacts at Fa Men Temple (Mr. Wen Rei-Tang).

1990, Arecon, srl., Padova, Italy  
Laser-divestment of facade of Cremona Cathedral including 12th C. carvings by Wiligelmo (Mons. Voltini).

1990, University of Padova, Padova, Italy  
Lecturer in computer image enhancement in the Dept. of Electronics and Computer Science (Prof. G. Cortelazzo).

1990-92, Rolls-Royce, plc., Bristol, UK  
Designed, developed, installed, and tested a laser/robotic machine vision system for the production of advanced turbine blades (Mr. Stroud).

1991, Arecon, srl., Padova, Italy  
Laser-divestment of the stone crests within the courtyard of the Palazzo Bo' at the University of Padova (Arch. Calcagno).

1991-93, Westinghouse Hanford Co., Richland, WA  
Consultant on laser techniques for the nuclear and chemical decontamination of the Hanford Nuclear Weapons Facility and its conversion to an Environmental Demonstration Park (Mr. Flesher).

1992-93, Illinois Dept. of Transportation, Springfield, IL  
Consultant on laser/robotic removal and containment of lead paints from Illinois bridges (Mr. Janssen).

1993, Fremont Fine Arts Foundry, Seattle, WA  
Consultant on a Christos-scale "Nuclear Sculpture" to be created at the Fast Flux Test Reactor in the Hanford Reservation to mark the transformation of the weapons facility into an environmental park (Mr. Acord).

1990, Enterprise, BBC for Rolex (7 min.)

1991, Invention, Discover Channel (5 min.)



NEW 1994

1993-94, Jay Defeo Estate/San Francisco Art Inst., SF, CA  
Ultrasonic imaging of the interior of the encased Defeo piece, "The Rose", prior to conservation (Ms. L. Levy).

1993-94, Trust for Preservation of Cultural Heritage, LA, CA  
Testing laser techniques for environmentally-safe removal of asbestos/lead coating from the Ennis-Brown House of Frank Lloyd Wright (Ms. Tani).

1994, International Technical Associates, Santa Clara, CA  
Comparative study of aircraft paint stripping techniques for USN (Dr. Robinson).

MUSEUM EXHIBITIONS

1974, "Lasers for the Good of Man", Reuben H. Fleet Museum.  
San Diego, CA

1976, "Beyond the Artist's Hand", California State University,  
Long Beach, Long Beach, CA

1976, 7, 8, & 9, "Laser Art Restoration", Parents' Day/Open House  
UCSD, Mandeville Center, San Diego, CA

FEATURE FILMS

1978, Visions, United States Information Agency (15 min.)

1979, The Lasers, AT&T (30 min.)

TV DOCUMENTARIES

1978, Strobe, PBS (30 min.)

1981, Walter Cronkite's Universe, CBS (10 min.)

1989, Around Los Angeles, Fox Cable (30 min.)

1990, Innovation, PBS (30 min.)

1990, Enterprise, BBC for Rolex (7 min.)

1991, Invention, Discover Channel (5 min.)



## PRIZES, HONORS, AND COMMENDATIONS

Sigma Xi (National Science)  
Tau Beta Pi (National Engineering)  
Schlumberger Fellow (Caltech)  
Tektronix Fellow (Caltech)  
Institute Scholar (Caltech)  
Drake Scholar (Caltech)  
Maharishi Award for Creativity  
Graduation with Honors (Caltech)  
Best Scholarly Article, 1988 (Soc. Tech. Comm.)  
Getty Fellow, 1989 (J.P. Getty Museum)  
Visiting Scholar (North West University, Xian)  
Winner, IBM Supercomputing Competition 1989 (IBM)  
Mellon Fellow, 1990 (Oberlin Coll.)  
Rolex Laureate for Enterprise, 1990 (Montres Rolex)  
Antonio Stradivari Medal (Mayor of Cremona, 1991)  
Who's Who in America  
American Men and Women of Science  
Who's Who in Frontiers of Science & Technology  
Gold Medal, So. Cal. Coll. Swimming Championships (1958)  
Varsity Letter, Swimming (Conference Champions, 1958, Caltech)  
US Delegate to ASPAC (Seoul, 1978)  
San Diegan To Watch in 1988, San Diego Magazine

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### NEW 1994

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"Honorary Councilor", Shaanxi Cultural Relics Assn. (1993)  
George Eastman Memorial Lecturer, 1994 (Optical Soc. of Am.)

## LEGAL EXPERIENCE

Expert witness testimony in 17 Superior Court cases in San Diego, San Bernardino, and Santa Barbara Counties.

## PATENTS

Inventor or co-inventor in 20 patents held by General Dynamics Corp., Maxwell Laboratories, Inc., and Regents of the University of California in the fields of lasers, laser applications, chemical processing, semiconductor processing, food processing, toxic chemical destruction, space propulsion, and plasma pinch devices.

INVITED LECTURES (partial laboratory listing)

Lawrence Livermore National Laboratory  
Los Alamos National Laboratory



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NEW 1994

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United States Patent #5,204,506 (Plasma pinch surface treating apparatus and method of using same), Dated 4/20/93, but received during current year.

INVITED LECTURES (Partial University Listing)

University of California Sys., UCSD, UCLA, UCSB, UCD, UCR  
Stanford Un.  
Yale Un.  
MIT  
Harvard Un.  
Un. of Illinois (Chicago Campus)  
Un. of Texas (Dallas Campus)  
Princeton Un.  
NYU  
Un. of Rochester  
Un. of New Mexico  
Loma Linda Un.  
New Mexico Technical Un.  
Coll. of So. Idaho  
San Diego State Un.  
Jesus Coll., Oxford  
Un. of Bristol  
Un. of Padova  
Un. of Pisa  
Un. of Strassbourg  
Un. of Bordeaux  
Un. of Madrid  
Un. of Edinburgh  
Rolls-Royce Technical Institute  
Un. of Hull  
Un. of Southampton  
Un. of Colorado  
Un. of Georgia  
Washington Un.  
Un. of Missouri (Rolla)  
George Washington Un.  
USC  
Cal Poly (Pomona)  
Marylhurst College

INVITED LECTURES (partial laboratory listing)

Lawrence Livermore National Laboratory  
Los Alamos National Laboratory



Sandia National Laboratory (Albuquerque & Livermore)  
 Brookhaven National Laboratory  
 Wright-Patterson AFB  
 Warner-Robbins AFB  
 TRW  
 RAND Corp.  
 GM Tech Center  
 IBM (Yorktown Heights & Palo Alto)  
 Varian Associates  
 Stanford Research Institute  
 M/A COM Link-A-Bit  
 Hewlett Packard  
 San Diego Supercomputer Center  
 NASA/JPL  
 Rembrandt Research Project  
 Canadian Conservation Institute  
 Culham Laboratory  
 Clarendon Laboratory  
 CNR/Venice (Pal. Papadopoli)  
 Battelle NW Lab.  
 US Naval Research Lab.

January 25, 1993

#### INVITED LECTURES (partial museum listing)

San Diego Fine Arts Museum  
 Boston Museum of Fine Arts  
 De Young Museum  
 Portland Art Museum  
 Los Angeles County Museum of Art  
 Natural History Museum (Smithsonian)  
 Sydney Art Gallery  
 New Zealand National Museum (Wellington)  
 Victoria & Albert Museum  
 Palazzo Strozzi (Florence)  
 Ashmolean Museum (Oxford)  
 Fort Vancouver  
 La Jolla Museum of Modern Art  
 The Prado

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 NEW 1994
 

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San Francisco Art Institute

#### INVITED LECTURES (grade, middle, and high schools)

Approximately 200 demonstration lectures given in California, Oregon, and Washington schools during past 20 years.

Lu J. Shan, Director