

Editorial

ELEVENTH INFORMAL CONFERENCE ON PHOTOCHEMISTRY

In Volume 1, number 4 (March 1973) we reported on the Tenth Informal Photochemistry Conference. The Eleventh in the series was held at Vanderbilt University, Nashville, Tennessee, from June 16th to 20th, 1974. On this occasion, the Host Committee was chaired by Professor Thomas W. Martin.

The Informal Conference on Photochemistry is the original continuing conference for physical photochemists started by Professor Francis E. Blacet in 1952. One of the great and original traditions of these Conferences is emphasized by the word "Informal" which is part of the official title because it is felt that a relaxed and more personal atmosphere for this Conference is the best way to foster a lively exchange of ideas among the participants. Thus the amount of programme devoted to formal presentations is purposely limited so that a greater portion of time is reserved for informal discussions. Necessarily, only a small proportion of the papers from these Conferences lend themselves to direct publication. This issue of the *Journal of Photochemistry* carries some of these papers, together with a record (p. 330) of all the contributions listed in the Conference Abstracts.

A major purpose of this particular meeting was to recognize the many contributions and outstanding personal qualities of one of the great pioneer American photochemists and founder of this Conference series, Professor Francis E. Blacet. An appreciation of Francis Blacet by Tom Martin appears on page 333, and a list of Blacet's students and associates on page 336.

R. P. Wayne

Eleventh Informal Conference on Photochemistry

LECTURE PROGRAMME*

Plenary Lectures

Picosecond kinetics of chemical and biological systems

P. M. Rentzepis (Bell Laboratories, Murray Hill, N.J.)

Low temperature excitation energy quenching in molecular solids from p.m.d.r. spectroscopy

M. A. El-Sayed (University of California, Los Angeles, Calif.)

Unimolecular primary processes: photochromism of three-membered heterocycles

A. M. Trozzolo (Bell Laboratories, Murray Hill, N.J.)

Bimolecular primary processes in the photochemistry of sulfur dioxide

Jack G. Clavert (The Ohio State University), Kenneth L. Demerjian (Environmental Protection Agency), Kuenja Chung (Texas A. & M. University)

Some recent studies of personal interest in molecular photobiology

B. Kok (Martin-Marietta Laboratories)

Rhodopsin cooperativity in vertebrate vision

G. Wilse Robinson (California Institute of Technology)

Application of the photochemistry of polluted urban atmospheres to models for control strategies

James N. Pitts, Jr. (University of California)

Special Lectures

Electronic relaxation in isolated disubstituted benzenes

M. G. Rockley and D. Phillips (University of Southampton, England)

The photoperoxidation of unsaturated organic molecules XII. Dissociative oxiplex relaxation

B. Stevens (University of South Florida, Tampa, Fla.)

Some recent applications of the *cis-trans* isomerisation technique in the study of primary processes

R. B. Cundall (University of Nottingham, England)

The mechanism of the photolysis and quenching of the 1,3,5-hexatriene and of 1,3-cyclohexadiene in the gas phase

S. W. Orchard and B. A. Thrush (Department of Physical Chemistry)

Research in photochemistry at the University of Bordeaux

J. Jousot-Dubien (University of Bordeaux, France)

Remarks on some approaches to solar energy conversion

B. Kok (Martin-Marietta Laboratories)

Polymer photochemistry and its relationship to degradable plastics

J. E. Guillet (University of Toronto, Canada)

Research Papers

Picosecond flash photolysis and spectroscopy: 3,3'-diethyloxadicyanone iodide (DODCI)

D. Magde and M. W. Windsor (Washington State University, Pullman, Wash.)

Predissociation in the 2491 Å system of NO₂

William M. Uselman and Edward K. C. Lee (University of California, Irvine, Calif.)

Mechanisms involving the transient absorptions of cyanine dyes in gelatin and adsorbed to silver halide films: temperature dependence

S. H. Ehrlich (Eastman Kodak Company, Rochester, N.Y.)

*Taken from the programme appearing in the Conference Abstracts.

The triplet state lifetimes of alkylbenzenes in the vapor phase

Merlyn D. Schuh (Middlebury College)

Solvent effects on thioxanthone fluorescence

J. C. Dalton and F. C. Montgomery (University of Rochester, N.Y.)

Unimolecular radiationless transition phenomena in 1,4-, 1,3-, and 2,3-diazanaphthalene vapors

J. R. McDonald (Naval Research Laboratory) and L. E. Brus (Bell Laboratories, Murray Hill, N.J.)

Dynamic and static quenching of the $\text{Ru}(\text{dipy})_3^{2+}$ phosphorescence by anionic coordination compounds in various solvents

F. Bolletta, M. Maestri, L. Moggi, V. Balzani (University of Bologna, Italy)

Energy transfer from transition metal complexes to oxygen

J. N. Demas and E. W. Harris (University of Virginia, Charlottesville, Va.)

Electronic energy transfer in the gas phase: the quenching of $\text{O}_2(^1\Sigma_g^+)$

K. Kear and E. W. Abrahamson (Case Western Reserve University, Cleveland, Ohio)

Investigations of transient species formed from the reaction of $\text{Hg}(^3\text{P}_0)$ with water

Alan B. Harker and C. S. Burton (Rockwell International Corp.)

Chemistry of vibrationally excited ozone

Michael J. Kurylo and Walter Braun (National Bureau of Standards, Washington, D.C.)

Electronic quenching of singlet substituted benzenes by O_2 , NO, olefins, and ketones in vapor phase

R. G. Brown and D. Phillips (University of Southampton, England)

Photophysics of all-*trans*-1,6-diphenylhexa-1,3,5-triene

E. D. Cehelnik (National Bureau of Standards, Washington, D.C.) and R. B.

Cundall, J. R. Lockwood and T. F. Palmer (University of Nottingham, England)

Photochemical processes as elucidated by e.s.r.

David H. Volman (University of California, Davis, Calif.)

Quantum yields of the $\text{Hg } 6(^3\text{P}_1)$ photosensitized isomerizations of *cis*- and *trans*-butene-2

Marc Termonia and George R. de Maré (Université Libre de Bruxelles, Belgium)

Singlet to triplet intersystem crossing in excited ketene

Vaclav P. Zabransky and Robert W. Carr Jr. (University of Minnesota)

Intersystem crossing of triplet formaldehyde

Richard G. Miller and Edward K. C. Lee (University of California, Irvine, Calif.)

The photochemistry of 1,4-dienes

Darrell Watson and Patrick S. Maritano (Texas A&M University)

Photochemistry of perfluorocyclobutanone

Roger Lewis and Edward K. C. Lee (University of California, Irvine, Calif.)

The photochemistry of 7-ketonorbornane in vapor phase and solution

T. F. Thomas (University of Missouri-Kansas City), B. Matuszewski and R. S.

Givens (University of Kansas, Lawrence, Kansas)

Photoenolization of *ortho*-methyl substituted benzaldehydes dispersed in durene single crystals

E. Migirdicyan, A. Despres, V. Lejeune, and S. Leach (Université de Paris-Sud, Orsay, France)

Fluoroethylene photoelimination chemical lasers: observed by vibrational transitions and measured by vibrational state populations in the photolysis of fluoroethylenes

William A. Tricomi and Michael J. Berry (University of Wisconsin, Madison, Wisc.)

Electronic and vibrational lasers from the photodissociation of parent cyanides, and an HCN polyatomic laser from the reaction: $\text{CN} + \text{H}_2$

Gary A. West and Michael J. Berry (University of Wisconsin, Madison, Wisc.)

Fluorescence produced in the vacuum ultra-violet photolysis of acetylene

H. Okabe (National Bureau of Standards, Washington, D.C.)

Multiphoton photochemical processes from non-coherent illuminations

François Gans, Elie Michel, Clément Troyanowsky and Pierre Valat (Ecole sup. de physique et chimie, Paris, France)

- On the excited imidogen radicals formed in the photolysis of gaseous ammonia
J. Masanet, A. Gilles and C. Vermeil (Equipe de Recherche du C.N.R.S., Paris, France)
- Relative quantum yield for the production of O atom and S atom from the photodissociation of OCS in the vacuum u.v.
R. B. Klemm, S. Glicker and L. J. Stief (Goddard Space Flight Center)
- Formation of O(¹D) in the photolysis of water and reaction of O(¹D) with H₂, Ar and He
L. J. Stief, W. A. Payne and R. B. Klemm (Goddard Space Flight Center)
- Laser flash photolysis of iodine in hydroxylic solvents; evidence for the existence of the radical anion I₄⁻
Roland Bonneau, Philippe Fournier de Violet and Jacques Jousset-Dubien (Université de Bordeaux, France)
- Oxidation of iodide ion by singlet oxygen
F. Dudley Bryant, A. G. Kepka and L. I. Grossweiner (Illinois Institute of Technology)
- Mechanisms of HF laser emissions from flash initiated CHFCI₂/NO and CH₂FCl/NO mixtures
R. G. Shortridge and M. C. Lin (Naval Research Laboratory)
- Chemical lasers produced from O(³P) atom reactions. IV. CO laser emission from the O + CN reaction
R. G. Shortridge and M. C. Lin (Naval Research Laboratory)
- Studies of Cd(³P_J) reactivity and quenching using resonance radiation flash photolysis
W. H. Breckenridge and T. W. Broadbent (University of Utah, Salt Lake City, Utah)
- New observations on the mercury photosensitized decomposition of methanol in the gas phase
K. Luther, H. E. Hunziker and H. R. Wendt (IBM Research Laboratory)
- Photochemistry of aromatic aldehydes and ketones
Jerry A. Bell, Michael Berger, Linda Giering and Colin Steel (Brandeis University)
- Solvent effects in chromium(III) photolyses
F. C. Wong and A. D. Kirk (University of Victoria, Victoria, B.C., Canada)
- Photooxidation and fluorescence of cerium(III) in aqueous sulfuric acid solutions (1)
R. W. Matthews (Australian Atomic Energy Commission Research Establishment) and T. J. Sworski (Oak Ridge National Laboratory, Tenn.)
- Studies using a combination of flash photolysis and pulsed magnetic fields to 200 kilogauss: application to the classic stilbene problem
T. W. Martin (Vanderbilt University), R. W. Glass, (Shell Chemical Company) and M. V. Stevens (Duckworth Pathology Laboratory)
- Spectroscopic adaption and phototransduction in vision
E. W. Abrahamson (Case Western Reserve University, Cleveland, Ohio)
- Physical and chemical quenching of O₂¹Δ_g by α-tocopherol (vitamin E)
B. Stevens and R. D. Small, Jr. (University of South Florida, Tampa, Fla.) and S. R. Perez (Xerox Corporation)
- Photochemical studies of macromolecule sensitizers
T. J. Wilkinson, P. S. Mariano and G. I. Glover (Texas A&M University)
- Energy transfer in fluorescent derivatives of thymine and uracil
John G. Burr, William A. Summers and Yong Jai Lee (University of Oklahoma, Norman, Okl.)
- Temperature and deuterium isotope effects on the lifetime of the lowest triplet state of tetraphenylporphyrin free base
R. P. Burgner and A. M. Ponte Goncalves (Pennsylvania State University, University Park, Pa.)
- Time dependent fluorescence polarization studies in isotropic and liquid crystal media
Edwin D. Cehelnik (National Bureau of Standards, Washington, D.C.) R. B. Cundall, J. R. Lockwood and T. F. Palmer (University of Nottingham, England)

The reaction of methyl radicals with molecular oxygen

N. Washida and Kyle D. Bayes (University of California, Los Angeles, Calif.)

Hydroxyl radical rate measurement for simple species by flash photolysis kinetic spectroscopy

R. Overend, G. Paraskevopoulos and R. J. Cvetanović (National Research Council of Canada, Ottawa, Canada)

Nitrogen dioxide photolysis at ppm concentration levels in the presence of nitrogen and air

C. H. Wu and H. Niki (Ford Motor Company, Dearborn, Mich.)

The photooxidation and stabilization of commercial polybutadiene

S. W. Beavan and D. Phillips (University of Southampton, England)

A cumulative chemical light meter

G. D. Dixon, D. H. Davies and J. D. Voytko (Westinghouse Research Laboratories)

Dependence of specific rate of disproportionation of photochemically generated semi-thionine radicals on solvent

P. D. Wildes, M. Z. Hoffman and N. N. Lichtin (Boston University, Mass.)

Development of a photogalvanic cell based on the iron-thionine system

William D. K. Clark (Esso Research and Engineering Company)

Energy conversion in photosynthesis

B. Kok (Martin Marietta Laboratories)

Francis E. Blacet

Francis Edward Blacet was born in Greenville, Illinois on February 25, 1899. He attended the then named James Milliken University in Decatur, Illinois, but received his B.A. and M.A. degrees from Pomona College in 1922 and 1925, respectively. He earned his Ph.D. in 1931 under the guidance of Dr. Philip Albert Leighton at Stanford University.

He taught as an Instructor at Stanford University during the academic year 1931 - 1932. He started his long teaching career at the University of California at Los Angeles as an Instructor in 1932.

During World War II, Francis Blacet served as an Official Investigator for the National Defense Research Committee. He became the recipient of the Presidential Certificate of Merit for this work in 1948 from President Harry S. Truman.

Returning to UCLA after the war he continued his teaching career. He served as Chairman of the Department of Chemistry from 1948 - 1956, Dean of the Division of Physical Sciences of the College of Letters and Sciences from 1957 - 66, and as Acting Dean of the College in 1966. He was promoted to Emeritus Professor of Chemistry in 1966. He received the coveted Richard C. Tolman Medal of the Southern California Section of the American Chemical Society in 1968 in recognition of his broad accomplishments in chemistry.

Over the years, Professor Blacet has taught many thousands of students the essentials of general chemistry and photochemistry. It is characteristic of his warmth and concern that he knows the address of every one of his former research students. Happily, Professor Blacet's influence on the field of chemistry is being multiplied by the success and work of his many students.

When Professor Blacet first went to the University of California at Los Angeles there was no graduate school. When he retired after eighteen years in administrative roles both within and without the department, the graduate school had an enrollment of approximately 10,000 and was ranked nationally. The Department of Chemistry certainly was strengthened by his efforts, judgement, and administrative skill. Professor Blacet is an excellent administrator for he shows great insight and judgement about people, has an outstanding sense of humor, is calm in times of crisis, exhibits common sense, disregards red tape, and instills confidence in those with whom he works.

Most of Professor Blacet's research involves quantitative studies of the mechanisms of photolysis of simple organic molecules, chiefly carbonyl compounds. His work on the butyraldehydes illustrates typical techniques and findings, leading to definite evidence on various primary modes of decomposition, and correlations with absorption and fluorescence spectra.

Among the techniques he used was the Blacet–Leighton micro gas analysis apparatus, which was standard for about two decades. Because of his pre-eminence in the photochemistry of organic molecules, Professor Blacet has been an advisor on local and national air pollution problems for two decades. He has published fifty-one papers.

Since 1948 Professor Blacet served as a consultant to the Air Pollution Control District of Los Angeles County. He is a member of the Scientific Committee on Air Pollution, advisory to the Los Angeles County Board of Supervisors. In 1963 - 64 he was a member of an advisory committee at the University Air Pollution Research Center, Riverside.

Professor Blacet played a key role in the development of a new adsorbent for gas masks, one still in use, and in studies of the dispersal of various agents, especially the non-persistent ones.

Professor Blacet met Kate Merrell at Pomono College and they were married in 1924. They have two children, a son, Philip, and a daughter, Ann.

Of his own career, Professor Blacet says:

“The 1930s were especially fun research years for me. After having spent 2½ years with Philip Leighton at Stanford University I initiated my own photochemical program at UCLA. I found undergraduates, as well as Masters candidates, eager to participate and together we accomplished a great deal considering the limited sophistication of our photochemical equipment and of our analytical procedures. Necessity was frequently the mother of invention and it was in that era that the Blacet–Leighton Apparatus for the microanalysis of gases was born. We have lived long enough to see it reach a modest heyday and then sink unnoticed into oblivion; thank God.

“After having gotten off to a promising start in the 1920s, interest in photochemistry lagged in the 1930s. Doubtless this was due to general disillusionment with an early concept that quantum yields must be whole numbers, usually 1 or 2, and therefore, the mechanisms of photochemical processes should be easy to establish. At any rate, one could almost count on his fingers the persons who carried the torch (mercury arc) for photochemistry during that period. They included, among others, Phil Leighton, Albert Noyes, Ned Steacie, Gerhard Rollefson, Farrington Daniels, and Norrish of England. Whenever possible small groups of these dedicated photochemists along with their students would get together for a day or two of informal discussions of their research problems. As I recall one of the most exciting and fruitful meetings of that decade was arranged by Phil Leighton at Stanford in 1938.

“After World War II these meetings continued with increasing interest and momentum and it soon became no longer possible, or perhaps even fair, to limit the attendance. Thus, today you are planning for a gathering of perhaps ten times the number of people we usually had in the early days. With such a large number, to maintain informality without chaos is a real challenge.

“My forty years of teaching were for the most part at the extremes of

the academic chemical spectrum, with freshmen and graduate students. I enjoyed both. A rough estimate indicates that over the years about 15,000 students passed through my undergraduate classes, and one of the pleasures of my later life is to have people come up and say, 'You don't remember me, but I was in your chemistry class way back when',

"UCLA was an undergraduate college of about 4000 students when I joined its Chemistry Faculty in 1932. A Masters degree program was initiated in 1934 and Doctorate work was started shortly before World War II. The war, of course, put a damper on academic research so it can fairly be stated that whatever status UCLA has today as a graduate and research institution was attained after 1945.

"Along with an exciting professional career, I've had a happy family life. In August, Kate and I will have been together 50 years. We have a son, Philip, who has two sons of his own, and a daughter, Ann Bullock, who has three daughters. Philip lives in Palo Alto. He has a Ph.D. in Geology from Stanford and is with the U.S. Geological Survey. Ann lives in Visalia. Her husband, Walter, is a public school administrator."

Thomas W. Martin

Students and Associates of Professor Francis E. Blacet

Kyle D. Bayes
Wayne E. Bell
Sidney Benson
Walter J. Blaedel
Robert K. Brinton
Jack G. Calvert
Robert L. Chass
Robert A. Crane
R. J. Cvetanović
Mostafa A. El-Sayed
Christopher S. Foote
Alvin S. Gordon
Robert Grabenstetter
H. E. Gunning
Ari J. Haagen-Smit
Thomas C. Hall
George S. Hammond
E. Russell Hardwick
Julius D. Heldman
Richard A. Holroyd
Harold S. Johnston
K. O. Kutschke

Philip A. Leighton
Leo D. Levanas
F. P. Lossing
Robert G. Lunche
James E. LuValle
Arnold Miller
Robert W. Moulton
Richard Noyes
W. A. Noyes, Jr.
Richard Pertel
George C. Pimentel
James N. Pitts, Jr.
Jack G. Roof
Robert D. Rowe
Robert L. Scott
Nelson Smith
A. N. Strachan
Alvin Taurog
R. P. Taylor
Robert Vanselow
David H. Volman