

CHEMICAL HERITAGE FOUNDATION

**JOHN R. FERRARO**

Transcript of Interview  
Conducted by

Michael A. Grayson

at

Ferraro's home  
Elmhurst, Illinois

on

9 May 2011

(With Subsequent Corrections and Additions)

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## JOHN R. FERRARO

1918 Born in Chicago, Illinois, on 27 January

### Education

1941 B.S., Chemistry, Illinois Institute of Technology  
1948 M.S., Chemistry, Northwestern University  
1954 Ph.D., Physical Chemistry, Illinois Institute of Technology

### Professional Experience

United States Army  
1941-1942 Analytical Chemist, Kankakee Arsenal  
  
Argonne National Laboratory, Lemont, Illinois  
1948-1980 Senior Scientist  
1986-2005 Consultant  
  
Loyola University, Chicago, Illinois  
1980-1985 Searle Professor Chemistry

### Honors

1973 Outstanding Achievements in Spectroscopy Award, New York Section of  
Society of Applied Spectroscopy  
1973 Distinguished Scientist Award, Argonne Universities Association  
1973-1974 Appointee, Hasler Award in Spectroscopy  
1974 Honorary Member, Society of Applied Spectroscopy  
1975 Meggers Award, Society of Applied Spectroscopy  
1975 Achievement in Spectroscopy Award, Chicago Section of Society of  
Applied Spectroscopy  
1986 Distinguished Service Award, Society of Applied Spectroscopy  
1990 Honorary Member, Coblenz Society  
1991 Emeritus Fellow, Italian Chemical Society  
1996 50 Years of Infrared Spectroscopy Symposium Honoring John R. Ferraro,  
Eastern Analytical Symposium  
1996 Editor Appreciation Award, *Journal of Applied Spectroscopy*  
2004 Fellow of the Society of Applied Spectroscopy

## ABSTRACT

**John R. Ferraro** was born and grew up in Chicago, Illinois, one of two children of Sicilian immigrants. His father was a tool and die maker, his mother a seamstress in a coat factory. His parents had little education themselves but valued it highly for their children. Ferraro attended Richard T. Crane Technical High School, where Francis Coulson fostered his interest in chemistry. Though the Great Depression continued, Ferraro found a job at General Motors, where he worked for three years before entering Illinois Institute of Technology, majoring in chemistry, working with Norman Kharasch.

After graduation Ferraro entered the U.S. Army and was sent to Grand Rapids, Michigan, for training in meteorology. He met his future wife there. He spent the remaining three and a half years of World War II in the Burma-China-India theater and another six months awaiting a ship home.

Finally back home, Ferraro received a master's degree from Northwestern University, working under Charles Hurd and leaving organic chemistry behind for good. Next he accepted a junior scientist position at Argonne National Laboratory, working in solvent extraction. He became interested in infrared spectroscopy, then far-infrared (FIR). Ferraro wrote what others have considered to be the seminal work on far-infrared spectroscopy and bought the first dedicated FIR instruments from Beckman Instruments and PerkinElmer. He taught at Loyola University in Chicago for five years, leaving there as professor emeritus. He spent a year at the Lunar Planetary Laboratory at the University of Arizona, learning Fourier transform (FTIR) spectroscopy. Ferraro then moved back to Argonne, where he spent a total of fifty-seven years.

Ferraro discusses his students; his theory about innovation; his travels and interactions with colleagues around the world; his publications; his interest in history and his genealogy; and his continuing affiliation with three museums. He talks about instrumentation and the nexus between technique and equipment; what he sees as the enormous improvements in instruments; the serendipity of Fourier transform and what it has made possible; and miniaturization.

Ferraro summarizes his own contributions to the field, particularly Raman, infrared, and far-infrared spectroscopy. Pointing out that his predictions of 1967 have come true, he theorizes about the future, discussing an expansion of ultraviolet Raman; terahertz spectroscopy; improved fiber optics; and greater importance of Raman to medicine. At the end of the interview, Ferraro talks in greater detail about his book *Vibrational Spectroscopy at High External Pressures: The Diamond Anvil Cell* and an article, "Recent Trends and Developments in Inorganic Far Infrared Spectroscopy," in *Analytical Chemistry*, as well as his publishing history and the number of awards he received for his work in the field of spectroscopy.

## INTERVIEWER

**Michael A. Grayson** retired from the Mass Spectrometry Research Resource at Washington University in St Louis in 2006. He received his B.S. degree in physics from St. Louis University in 1963 and his M.S. in physics from the University of Missouri at Rolla in 1965. He is the author of over forty-five papers in the scientific literature dealing with mass spectrometry. Before joining the Research Resource, he was a staff scientist at McDonnell Douglas Research Laboratory. While completing his undergraduate and graduate education, he worked at Monsanto Company in St. Louis, where he learned the art and science of mass spectrometry under O. P. Tanner. Grayson is a member of the American Society for Mass Spectrometry (ASMS), and currently is the Archivist for that Society. He has served many different positions within ASMS. He has served on the Board of Trustees of CHF and is currently a member of CHF's Heritage Council. He continues to pursue his interest in the history of mass spectrometry by recording oral histories, assisting in the collection of papers, researching the early history of the field, and preparing posters recounting historic developments in the field.

## TABLE OF CONTENTS

Early Years	1
<p>Born and raised in Chicago, Illinois. Parents Sicilian immigrants. New Orleans, Louisiana. Father a tool and die maker, mother a seamstress in coat factory. One sister. Parents had little education, so valued it for children. Richard T. Crane Technical High School. Francis Coulson. Graduation in Depression. General Motors parts factory. Illinois Institute of Technology (IIT). Major in chemistry. Norman Kharasch.</p>	
U.S. Army Years	9
<p>After graduation entered U.S. Army. Washed DuPont's chemicals for bombs. Grand Rapids, Michigan. Training as meteorologist. Met future wife. U.S. Army Air Forces Intelligence. Burma-China-India (BCI) front. Three and one-half years of work in BCI. Six months in Calcutta, India, waiting to be sent home; betting on horse races.</p>	
Graduate Years and First Job	19
<p>Northwestern University. Master's degree. Charles Hurd. Physical chemistry. Argonne National Laboratory (ANL). Fifty-seven years at ANL. Finished PhD. Solvent extraction. Infrared (IR) spectroscopy; far-infrared (FIR).</p>	
Argonne National Laboratory	27
<p>More on far-infrared spectroscopy. Beckman Instruments's first FIR instrument. Bought first dedicated FIR instruments from Beckman and PerkinElmer. Senior scientist. Culture at Argonne. Freedom at work. Students. Education division.</p>	
University Years	32
<p>Early retirement. Searle professorship of chemistry at Loyola University in Chicago. Alkaline metal solids. Fourier transform infrared (FTIR) spectroscopy. Academic politics. Professor Emeritus. University of Arizona's Lunar Planetary Laboratory. Gerard Kuiper. FTIR.</p>	
Back to Argonne	45
<p>Consultant. Exposure to organophosphides; liver damage. Funding and project approval. Interaction with other scientists. Nearly all his PhD students at Argonne women. Patent. Publications. Innovation. Travel. Rome, Italy. University of Florence. University of Cagliari. University of Aachen. Publications. Kazuo Nakamoto. Raman spectroscopy.</p>	
General Topics	74
<p>Organic chemistry. Inorganic field. Analytical chemistry. Pittsburgh Conference on Analytical Chemistry and Mass Spectrometry (PittCon). PittCon awards. Museums. Chemical Heritage Foundation. World War II Museum in New Orleans. Chicago's World War II Italian-American Veterans Museum.</p>	

Interest in history. Genealogy. History of CBI group.	
Instrumentation	82
Early electronics in spectroscopy. Interferometer invention. Cooley-Tukey algorithm. Commercial FT interferometer. Computers. Serendipity. Fourier transform. Miniaturization ancillary to techniques. Charge-coupled device (CCD). Diodes. CD diodes. Fiber optics. Miniaturization in optical spectroscopy and Raman. Expense of lasers. Coherent anti-Stokes Raman spectroscopy (CARS). Inverse Raman.	
Publications, Colleagues, Funding	89
Colleagues and peers. Funding in United States and in Europe. Harwell Laboratory paper. Enjoyment of writing. Collaborations with instrument providers. Consultant at Digilab. Infrared spectroscopy used in war effort. Synthetic rubber. <i>Vibrational Spectroscopy at High External Pressures: The Diamond Anvil Cell</i> and “Recent Trends and Developments in Inorganic Far Infrared Spectroscopy” in <i>Analytical Chemistry</i> . Region and coordinated instrument.	
The Future	106
Ultraviolet Raman. Terahertz spectroscopy. Fiber optics. Raman and medicine. Predictions from 1967.	
List of Publications	112
Index	133



## INDEX

### A

Abbott Laboratories, 39  
ACS. *See* American Chemical Society  
American Chemical Society, 42, 44  
*Analytical Chemistry*, 24, 26  
Argonne National Laboratory, 17, 20, 26,  
29, 30, 31, 32, 34, 39, 40, 52, 54, 55, 56,  
58, 59, 89, 90, 97, 101  
Arnold, General Henry H., 11  
Atabrine, 46

### B

Bartlesville, Oklahoma, 42, 44  
Bartlett, Neil, 60  
Basile, Louis J., 89  
Basolo, Fred, 65  
Baylor University, 62  
Beck, C.M., 71  
Beckman Instruments, 24, 98, 99  
BEDT-TTF (bis(ethylenedithio)  
tetrathiafulvalene)., 94  
Beijing, China, 18, 19  
Bethesda, Maryland, 72  
Bhamo, Burma, 11  
Biemann, Klaus, 72  
Bio-Rad Laboratories, 79  
Block Engineering, 79  
Boston, Massachusetts, 97  
Burma, 10, 11, 12, 17, 46, 48, 74

### C

Calascibetta, Sicily, 3  
Calcutta, India, 13, 18  
Canisius College, 108  
CARS. *See* coherent anti-Stokes Raman  
spectroscopy  
CCD. *See* charge-coupled device  
charge-coupled device, 83  
Chemical Heritage Foundation, 74  
Chiarizia, Renato, 90

Chicago, Illinois, 1, 2, 4, 5, 7, 29, 38, 39  
China, 10, 11, 13, 17, 18, 19, 46, 48, 74  
Choca, Monica E., 101  
CIA. *See* U.S. Central Intelligence Agency  
coherent anti-Stokes Raman spectroscopy,  
85, 107  
Columbia, Missouri, 40  
Cooley, James W., 78, 79, 81  
Coulson, Francis C., 14

### D

De Paul University, 66  
Detroit, Michigan, 31, 59  
diamond anvil, 25, 28, 32, 55  
Digilab, 96, 97, 98

### E

E.I. DuPont de Nemours and Company, 7,  
8, 9  
Elder, Albert L., 42  
Ellis Island, New York, 3  
England, 11, 87

### F

Fales, Henry, 72  
Fellget, P.B., 78  
Fermi, Enrico, 70  
Ferraro, Carmelo (Charles) (father), 3  
Ferraro, Giovanna (Jenny) (mother), 3  
Ferraro, Mary (wife), 10  
Fink, Uwe, 101  
Florence, Italy, 65  
Florida, 9, 58  
Fourier transform, 35, 68, 71, 73, 79, 82, 96

### G

G.D. Searle and Company, 54  
Gallwas, Gerald, 83  
General Motors Company, 6  
Germany, 66, 87  
Grand Rapids, Michigan, 9, 10

Gurkhas, 12

## H

Harvard University, 37  
Harwell Laboratory, 87  
Hurd, Charles D., 17, 42

## I

IIT. *See* Illinois Institute of Technology  
Illinois, 10  
Illinois Institute of Technology, 6, 7, 15, 20,  
36, 37, 38, 62  
India, 10, 11, 12, 13, 16, 17, 18, 46, 74  
interferometer, 78, 79, 80  
Italy, 1, 2, 4, 65, 87

## J

Japan, 12

## K

Kharasch, Morris S., 37  
Kharasch, Norman, 37  
Kuiper, Gerard P., 34, 35  
Kunming, China, 18

## L

lanthanides, 23, 24, 25  
Loyola University, 29, 30, 32, 52

## M

malaria, 46, 47  
Margoshes, Marvin, 89  
Marquette University, 68, 91, 101  
Martin, Kate, 90  
Massachusetts Institute of Technology, 72  
McCrone Associates, 56  
McDonnell-Douglas Research Labs, 49  
Mellon, Melvin Guy, 70  
Michelson, Albert A., 78  
Miller, Foil A., 70  
MIT. *See* Massachusetts Institute of  
Technology  
Mongolia, 18

Moore, Carl E., 54  
Morley, Edward, 78  
Myitkyina, Burma, 11, 12

## N

Nakamoto, Kazuo, 68, 86, 91, 101  
Naples, Italy, 90  
National Institutes of Health, 72  
New Orleans, Louisiana, 3, 74, 75, 76  
NIH. *See* National Institutes of Health  
Northwestern University, 8, 17, 20, 38, 39,  
65

## O

Obama, President Barack H., 43  
organophosphorus, 21, 22, 45

## P

patent, 60, 61, 62  
Pearson, Ralph, 8, 38  
Peppard, Donald F., 62, 94, 95  
PerkinElmer, Inc., 24, 98, 99  
PittCon. *See* Pittsburgh Conference on  
Analytical Chemistry and Mass  
Spectrometry  
Pittsburgh Conference. *See* Pittsburgh  
Conference on Analytical Chemistry and  
Mass Spectrometry  
Pittsburgh Conference on Analytical  
Chemistry and Mass Spectrometry, 70,  
72  
Postmus, Clarence, 92, 93  
Princeton University, 37  
publications, 24, 25, 26, 27, 56, 57, 58, 59,  
60, 61, 62, 66, 67, 68, 76, 91, 95, 100,  
101, 102, 103

## Q

Quattrochi, Anthony, 99

## R

*Raman Spectroscopy Theory and Practice*,  
108  
Rangoon, Burma, 11, 13

religion

Christianity

Roman Catholicism, 2

Society of Jesus, 54

Richard T. Crane Technical Preparatory

High School, 3, 15

Rome, Italy, 64, 66, 90

## S

Sacconi, Luigi, 65

Sardinia, 66, 67

Servicemen's Readjustment Act of 1944, 17, 38

Shashanka, Mitra, 96

Sicily, 2, 3

Society for Applied Spectroscopy, 54, 85

spectroscopy, 23, 25, 32, 34, 51, 71, 72, 73, 78, 79, 82, 83, 84, 85, 86, 91, 98, 107, 108, 109

far-infrared, 23, 24, 25, 27, 32, 34, 35

infrared, 23, 24, 25, 27, 34, 55, 69, 72,

79, 84, 85, 86, 87, 88, 93, 95, 98, 99,

103, 104, 105, 106, 108, 109

Raman spectroscopy, 68, 84, 85, 86, 91, 107, 108, 109

St. Louis, Missouri, 39

Stagg Field. *See* University of Chicago

Summit Argo, Illinois, 42

Szymanski, Herman, 108

## T

third phase, 33, 34, 51

thorium, 20, 33, 51

thorium nitrate, 20, 33, 51

Tokyo, Japan, 19

Tucson, Arizona, 34, 35

Tukey, John W., 78, 79, 81

Tulane University, 15, 74

## U

U.S. Army, 7, 9

U.S. Army Air Forces, 18

U.S. Central Intelligence Agency, 18, 19

U.S. Department of War, 4

U.S. Navy, 9

United States of America, 7, 9, 68

University of Aachen, 66, 87

University of Arizona, 34, 35

Lunar Planetary Laboratory, 34, 35, 101

University of British Columbia, 60

University of Cagliari, 66

University of Chicago, 37, 46

Stagg Field, 9, 20

University of Detroit, 59

University of Florence, 65

University of Missouri, 40

University of Pittsburgh, 70

University of Rome, 65

## V

vacuum (system), 86, 105

## W

Walling, Priscilla LaBonville, 58, 95, 101

Wang, H.H., 93

Washington, D.C., 50

Williams, Jack M., 32, 34, 90

Wisconsin, 68

World War I, 4

World War II, 4, 13, 74, 98

World War II Italian-American Veterans  
Museum, 74

Wu, Jinguang, 108

## Z

Zambia, 46

Ziedler, Manfred, 66