

GENEALOGY DATABASE ENTRY

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Muetterties, Earl Leonard

1927 - 1984

DEGREE: PhD

DATE: 1952

PLACE: Harvard

TEACHER/RESEARCH ADVISOR: Rochow

first to apply topological arguments to the analysis of intramolecular exchange phenomena; pioneer in applying permutation analysis to NMR data in distinguishing reaction pathways; demonstrated nucleophilic attack at the carbon atom of coordinated carbon monoxide in metal carbonyls by using ^{18}O -labeled water; emphasized the concept that every spectroscopic method has a characteristic time scale; used NMR spectroscopy to study dynamic processes in inorganic compounds, establishing the stereochemistry of main-group fluorides such as PF_5 ; developed new methods for synthesizing fluorocarbons and the main-group hydrides, particularly SiH_4 and B_2H_6 ; discovered independently (with Hawthorne) the polyhedral borane anions such as $\text{B}_{12}\text{H}_{12}^{2-}$ and investigated their chemistry; discovered a unique regioselective reduction of aromatic hydrocarbons to give all-cis addition of hydrogen and characterized the mechanistic aspects of this reaction; investigated the structural systematics and interrelationships between coordination complexes and clusters; among the first to develop and articulate the cluster-surface analogy for surface chemisorption states; used surface science techniques to establish how aromatic organic molecules are bound to surfaces, and how carbon-hydrogen bonds are broken in the reactions of these molecules on surfaces.

1. Jolly, W. L. *From Retorts to Lasers*; University of California: 1987; p252-253.
2. *Organometallics* **1985**, 4, 1-4.