The Scientific Contributions of Donald J. Cram

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Winning a Nobel Prize

• 1985 Nobel Prize winner with Professor Jean-Marie Lehn and research chemist Charles J Pedersen for their combined work with “development and use of molecules with structure-specific interactions of high selectivity”.

• Credited with being the founders of supramolecular chemistry
  - Also referred to as lock and key or host-guest

The Nobel Prize in Chemistry 1987

April 22, 1919 – June 17, 2001

Career
• 1947–1985 (Professor) – University of California, Los Angeles

Awards
• 1967 – American Chemical Society Newby McCoy Award
• 1974 – American Chemical Society Arthur C. Cope Award
• 1974 – California Scientist of the Year
• 1975 – American Chemical Society Newby McCoy Award
• 1987 – Nobel Prize for Chemistry

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Leah Connery
CHE 203-061

Cram designed immobile host molecules
  - Strong complexes
  - Extremely selective

Carcernands
• In the 80’s, Donald Cram was the first to develop carcerands
  - A molecular container that can trap guest species
  - Guest is unable to leave
  - The union is called a carcerplex
  - Carcerands are very selective when choosing a guest
  - Carcerands allow the study of volatile substances that were previously impossible to study

Hemicarcerand
• With the creation of hemicarcerand, the guest was able to leave
• When the guest is present, they are called hemicarceplexes

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Reprentative Publications

References