{{Use dmy dates|date=July 2012}}

[[File:IUPAC.svg|thumb|upright|150px|IUPAC標誌]]

'''国际纯化学与应用化学联盟'''，又称为'''國際純化學與應用化學協會'''、'''国际理论与应用化学联合会'''或者'''国际理论与应用化学联盟'''（[[英文]]：'''I'''nternational '''U'''nion of '''P'''ure and '''A'''pplied '''C'''hemistry，簡稱'''IUPAC'''）是一個聯合設國家會員組織，並代表各國化學家的國際聯盟。它是[[國際科學理事會]]的成員之一。<ref name="nao">{{cite web|url=http://www.iupac.org/nao |title=IUPAC National Adhering Organizations |publisher=Iupac.org |date=2 June 2011 |accessdate=8 June 2011}}</ref>IUPAC的國際總部設於[[瑞士]][[蘇黎世]]。其行政辦公室，或稱IUPAC秘書處，位於[[美國]][[北卡羅萊納州]]的[[三角研究園]]。這所行政辦公室由IUPAC的理事長帶領。<ref>{{cite web|url=http://old.iupac.org/symposia/conferences/ga09/Council\_Agenda\_Book\_2009.pdf|title=IUPAC Council Agenda Book 2009|publisher=IUPAC|accessdate=17 April 2010|year=2009}}</ref>截至2012年8月1日的理事長為John D. Petersen博士。<ref>http://www.iupac.org/news/news-detail/article/john-d-petersen-appointed-iupac-executive-director.html</ref>

IUPAC於1918年成立，前身為國際應用化學大會。其成員「設國家會員組織」可以是國家的科學學會、科學研究所，以及任何其他代表化學家的組織。成員包括54個設國家會員組織以及3個聯繫會員。<ref name="nao"/>IUPAC跨部門的命名及符號委員會（[[IUPAC命名法]]）是建立[[化學元素]]及[[化合物]]命名標準的國際權威。自從創立以來，IUPAC由多個委員會運行，各有其能。<ref name="governing committees">[http://www.iupac.org/Organization/Committees IUPAC Committees list] retrieved 15 April 2010</ref>這些委員會分別進行不同的計劃，包括統一命名、<ref name="Interdivisional Committee on Terminology">[http://www.iupac.org/web/ins/027 Interdivisional Committee on Terminology web page] retrieved 15 April 2010</ref>向世界推廣[[化學]]<ref name="CHEMRAWN activities">[http://www.iupac.org/news/archives/2007/44th\_council/Item\_12-2\_2007.pdf Chemdrawn] retrieved 15 April 2010</ref>以及出版文獻。<ref name="Pure and Applied Chemistry Editorial Advisory Board">[http://www.iupac.org/web/ins/030 Pure and Applied Chemistry Editorial Advisory Board web page] retrieved 15 April 2010</ref><ref name="Project Committee">{{cite web|url=http://www.iupac.org/web/ins/013 |title=Project Committee web page |publisher=Iupac.org |date=2 June 2011 |accessdate=8 June 2011}}</ref><ref name="Evaluation Committee">[http://www.iupac.org/web/ins/014 Evaluation Committee page] retrieved 15 April 2010</ref>

IUPAC以統一規範化學等領域的命名而著稱，但它也同時有多項涉及化學、生物學及物理學的出版物。<ref name="History of IUPAC">{{Cite book|last= Fennel |first= R.W. |title= History of IUPAC, 1919–1987 |publisher= Blackwell Science |year= 1994 |isbn= 0-86542-8786(94)}}</ref>其中重要的貢獻包括：對[[核酸]]基序列碼的規範化，出版有關環境科學、化學和物理學的文獻，以及帶領增強科學教育。<ref name="History of IUPAC"/><ref name="IYC">[http://www.chemistry2011.org/about-iyc/introduction IYC: Introduction.] 9 July 2009. Retrieved on 17 February 2010. Retrieved 15 April 2010</ref>

==成立與歷史==

[[Image:Frkekulé.jpg|thumb|upright|弗里德里希·奧古斯特·凱庫勒·馮·斯特拉多尼茨]]由德國科學家[[弗里德里希·奧古斯特·凱庫勒·馮·斯特拉多尼茨]]帶頭的一個委員會在1860年首次探討有關需要一個國際化學標準的問題。該委員會進行了世界首次有關國際[[有機化合物]]命名系統的會議。<ref name="History of IUPAC">{{Cite book|last= Fennel |first= R.W. |title= History of IUPAC, 1919–1987 |publisher= Blackwell Science |year= 1994 |isbn= 0-86542-8786(94)}}</ref>會議中的思想最終演化成為正式的[[IUPAC有機物命名法]]。<ref name="History of IUPAC"/>IUPAC是這次會議的成果，因此也是國際化學學會之間歷史上最重要的合作之一。<ref name="History of IUPAC"/>從此，IUPAC擔起了更新及維護[[有機物命名法]]的重責。<ref name="Chemistry The Central Science">{{Cite book|last= Brown |first= Theodore L. |coauthors= H. Eugene LeMay Jr, Bruce E Bursten |title= Chemistry The Central Science Tenth Edition |publisher= Pearson Books |year= 2006 |isbn= 0-13-109686-9}}</ref>IUPAC就此在1919年成立了。<ref>http://www.iupac.org/home/about.html</ref>最初的IUPAC並沒有包括[[德國]]，這是由於同盟國在[[第一次世界大戰]]後對德國持有偏見。<ref name="Wissenschaften und Wissenschaftspolitik: Bestandsaufnahmen zu Formationen, Brüchen und Kontinuitäten im Deutschland des 20. Jahrhunderts">{{Cite book|last= Kaderas |first= Brigitte |title= Wissenschaften und Wissenschaftspolitik: Bestandsaufnahmen zu Formationen, Brüchen und Kontinuitäten im Deutschland des 20. Jahrhunderts|language=German |publisher= Franz Steiner Verlag |year= 2002 |isbn= 3-515-08111-9}}</ref>德國最終於1929年進入IUPAC，但[[納粹德國]]在[[第二次世界大戰]]期間再被剔出IUPAC。

二戰期間，IUPAC與[[同盟國]]保持者關係，但對戰事本身參與不多。戰後，西德被允許重返IUPAC。<ref name="Wissenschaften und Wissenschaftspolitik: Bestandsaufnahmen zu Formationen, Brüchen und Kontinuitäten im Deutschland des 20. Jahrhunderts"/>從二戰至今，IUPAC持續不間斷地對命名及科學方法規範化，沒有受到更多的阻礙。

==委員會與治理==

IUPAC由多個[[委員會]]治理，各有其不同的責任。委員會有：理事會、適應世界需求的化學研究委員會（CHEMRAWN）、化學教育委員會、化學與工業委員會、印刷及電子出版物委員會、評估委員會、執行委員會、財務委員會、跨部門術語、命名及符號委員會、項目委員會、以及純粹與應用化學編委。<ref name="governing committees"/>每個委員會都由各國的會員組織組成。<ref name="nao">[http://www.iupac.org/nao IUPAC National Adhering Organizations] retrieved 15 April 2010</ref>

IUPAC的指導委員會架構如下：<ref name="Project committee">[http://www.iupac.org/web/ins/013 IUPAC Project Committee] retrieved 15 April 2010</ref>

# 所有委員會需遵循為其分配的預算。

# 任何委員會都可以開始一個項目或計劃。

# 一旦項目超出委員會的預算，該問題必須提交到項目委員會。

# 項目委員會將提高預算，或尋找外來資金。

# 理事會及執行委員會監督著其他委員會的運作。

{| class="wikitable"

|+委員會列表

|-

! 委員會名稱（縮寫）

! 責任

|-

| '''理事會'''

|

\* 討論並修訂哪一個委員會負責哪一個項目。

\* 控制其他委員會及IUPAC整體的財務。

\* 探討IUPAC的整體治理。<ref name="bureau meeting">[http://old.iupac.org/news/archives/2007/84\_bureau.html IUPAC news and references] retrieved 15 April 2010</ref>

|-

| '''適應世界需求的化學研究委員會'''（CHEMRAWN）

|

\* 討論化學能夠通過甚麼方法幫助世界。<ref name="CHEMRAWN activities"/>

|-

| '''化學教育委員會'''（CCE）

|

\* 配合世界上的教育系統協調IUPAC的化學研究。<ref name="Chemistry Education">[http://www.iupac.org/web/ins/050 Chemistry Education] retrieved 15 April 2010</ref>

|-

| '''化學與工業委員會'''（COCI）

|

\* 配合[[工業化學]]所需協調IUPAC的化學研究。<ref name="Chemistry and Industry">[http://www.iupac.org/web/ins/050 Chemistry and Industry] retrieved 15 April 2010</ref>

|-

| '''印刷及電子出版物委員會'''（CPEP）

|

\* 設計並使用IUPAC的出版物。

\* 率領[[光譜學]]資料標準小組委員會。<ref name="Committee on Electronic and printed Publications">[http://www.iupac.org/web/ins/024 Committee on Electronic and Printed Publications webpage] retrieved 15 April 2010</ref>

|-

| '''評估委員會'''（EvC）

|

\* 評估每項計劃

\* 將有關每個項目的事宜向執行委員會報告。<ref name="Evaluation Committee"/>

|-

| '''執行委員會'''（EC）

|

\* 計劃並探討IUPAC活動

\* 討論IUPAC籌款

\* 檢閱其他委員會的工作<ref name="Executive Committee example meeting">[http://www.iupac.org/news/archives/2009/141\_ec.pdf Executive Committee meeting] retrieved 15 April 2010</ref>

'''現任執行委員會委員''':

\* 主席：Moreau, Nicole J.

\* 副主席：巽和幸

\* 財務：Corish, John

\* 秘書長：Black, David StC.<ref name="executive committee">[http://www.iupac.org/web/ins/020 Executive Committee Page] retrieved 15 April 2010</ref>

|-

| '''財務委員會'''（FC）

|

\* 協助其他委員會有效地管理經費。

\* 有關投資事宜向聯合會委員作顧問。<ref name="Finanace Committee">[http://www.iupac.org/web/ins/026 Finance Committee web page] retrieved 15 April 2010</ref>

|-

| '''跨部門術語、命名及符號委員會'''（ICTNS）

|

\* 管理[[IUPAC命名法]]

\* 在各個項目中統一命名法。

\* 統一度量衡

\* 討論原子重量標準。<ref name="Interdivisional Committee on Terminology"/>

|-

| '''項目委員會'''（PC）

|

\* 管理跨部門項目的經費。

\* 判斷項目是否會超出預算

\* 建議外來項目經費來源

\* 決定如何為發展中國家及處於危機中的國家提供經費。<ref name="Project Committee">[http://www.iupac.org/web/ins/013 Project Committee web page] retrieved 15 April 2010</ref>

|-

| '''純粹與應用化學編委'''（PAC-EAB）

|

\* 協助計劃、使用並發佈[[純粹與應用化學]]出版物<ref name="Pure and Applied Chemistry Editorial Advisory Board"/>

|}

==命名法==

IUPAC的委員會長時間以來擔任著正式命名[[有機化合物]]和[[無機化合物]]的工作。[[IUPAC命名法]]能夠為任何化合物提供命名，並且可以避免重複命名。其首次出版於20世紀初的《IUPAC有機物命名法嚮導》中，這是國際應用化學大會所得出的<ref name="publications">[http://www.iupac.org/indexes/books/years/1900 IUPAC Publications List] retrieved 15 April 2010</ref>[[IUPAC有機物命名法]]。

===有機物命名法===

IUPAC有機物命名法有三個主要部分：[[取代基]]、[[成鏈|碳鏈]]長度及化學chemical ending.<ref name="Chemistry The Central Science"/> The [[substituents]] are any functional groups attached to the main carbon chain. The main carbon chain is the longest possible continuous chain. The chemical ending denotes what type of molecule it is. For example, the ending "ane" denotes a single bonded carbon chain, as in "hexane" ({{chem|C|6|H|14}}).<ref name="Organic Chemistry I As a Second Language: Translating the Basic Concepts">{{Cite book|last= Klein |first= David R. |title= Organic Chemistry I As a Second Language: Translating the Basic Concepts Second Edition |publisher= John Wiley & Sons Inc. |year= 2008 |isbn=978-0-470-12929-6}}</ref>

Another example of [[IUPAC organic nomenclature]] is [[cyclohexanol]]:

[[File:Cyclohexanol acsv.svg|thumb|150px|center|Cyclohexanol]]

\* The substituent name for a [[ring compound]] is "cyclo".

\* The indication (substituent name) for a six [[carbon chain]] is "hex".

\* The chemical ending for a single bonded [[carbon chain]] is "ane"

\* The chemical ending for an [[alcohol]] is "ol"

\* The two chemical endings are combined for an ending of "anol" indicating a single bonded carbon chain with an alcohol attached to it.<ref name="Chemistry The Central Science"/><ref name="Organic Chemistry I As a Second Language: Translating the Basic Concepts">{{Cite book|last= Klein |first= David R. |title= [[Organic Chemistry I As a Second Language: Translating the Basic Concepts Second Edition]] |publisher= [[John Wiley & Sons Inc.]] |year= 2008 |isbn= 978-0-470-12929-6}}</ref><ref name="Gold Book second edition">{{cite web|url=http://old.iupac.org/publications/compendium/ |title=Gold Book web page |publisher=Old.iupac.org |date=19 October 2006 |accessdate=8 June 2011}}</ref>

===Inorganic nomenclature===

Basic IUPAC inorganic nomenclature has two main parts: the [[cation]] and the [[anion]]. The cation is the name for the positively charged [[ion]] and the anion is the name for the negatively charged [[ion]].<ref name="Chemistry The Central Science"/>

An example of [[IUPAC inorganic nomenclature]] is [[potassium chlorate]]:

[[File:Potassium-chlorate-composition.png|thumb|150px|center|Potassium chlorate]]

\* [[Potassium]] is the [[cation]] name.

\* [[Chlorate]] is the [[anion]] name.<ref name="Chemistry The Central Science"/>

==Amino acid and nucleotide base codes==

IUPAC also has a system for giving codes to identify [[amino acid]]s and [[nucleotide]] bases. IUPAC needed a coding system that represented long sequences of amino acids. This would allow for these sequences to be compared to try to find [[homologies]].<ref name="Amino Acid">[http://www.chem.qmul.ac.uk/iupac/misc/naabb.html Amino Acid Codes] retrieved 15 April 2010</ref> These codes can consist of either a one letter code or a three letter code. For example:

\* [[Alanine]]: Single letter code: A, Three letter code: Ala

These codes make it easier and shorter to write down the amino acid sequences that make up [[proteins]]. The nucleotide bases are made up of [[purines]] ([[adenine]] and [[guanine]]) and [[pyrimidines]] ([[cytosine]] and [[thymine]] or [[uracil]]). These nucleotide bases make up [[DNA]] and [[RNA]]. These nucleotide base codes make the genome of an organism much smaller and easier to read.<ref name="Amino">[http://www.ebi.ac.uk/2can/tutorials/aa.html Amino Acid and Nucleotide Base Codes] retrieved 15 April 2010</ref>

==Publications==

===Non-series books===

{| class="wikitable"

|-

! Book Name

! Description

|-

| '''''Principles and Practices of Method Validation'''''

|

''Principles and Practices of Method Validation'' is a book entailing methods on validating and analyzing a many [[analyte]]s taken from a single [[aliquot]].<ref name="flipkart review of Principles and Practices of Method Validation">[http://www.flipkart.com/principles-practices-method-validation-fajgelj/0854047832-o8w3f3l1oc Flipkart Review of Principles and Practices of Method Validation] retrieved 15 April 2010</ref> Also, this book goes over techniques for analyzing many samples at once. Some methods discussed include: chromatographic methods, estimation of effects, matrix induced effects, and the effect of an equipment setup on an experiment.<ref name="flipkart review of Principles and Practices of Method Validation"/>

|-

| '''''Fundamental Toxicology'''''

|

''Fundamental Toxicology'' is a textbook that proposes a [[curriculum]] for [[toxicology]] courses.<ref name="Fundamental Toxicology">[http://www.amazon.com/dp/0854046143 Fundamental Toxicology review on amazon] retrieved 15 April 2010</ref> ''Fundamental Toxicology'' is based on the book ''Fundamental Toxicology for Chemists''.<ref name="Fundamental Toxicology Review">[http://www.rsc.org/Shop/books/2006/9780854046140.asp Fundamental Toxicology review on rsc.org] retrieved 15 April 2010</ref> ''Fundamental Toxicology'' is enhanced through many revisions and updates. New information added in the revisions includes: [[risk assessment]] and management; reproductive toxicology; behavioral toxicology; and [[ecotoxicology]].<ref name="Fundamental Toxicology Review"/> This book is relatively well received as being useful for reviewing chemical [[toxicology]].<ref name="Fundamental Toxicology"/>

|-

| '''''Macromolecular Symposia'''''

|

''Macromolecular Symposia'' is a journal that publishes fourteen issues a year. This journal includes contributions to the macromolecular chemistry and physics field. The meetings of the IUPAC are included in this journal along with the [[European Polymer Federation]], the [[American Chemical Society]], and the [[Society of Polymer Science]] in Japan.<ref name="Macromolecular Symposia">[http://old.iupac.org/publications/macro/index.html Macromolecular Symposia] retrieved 15 April 2010</ref>

|}

===Experimental Thermodynamics book series===

The Experimental Thermodynamics books series covers many topics in the fields of thermodynamics.

{| class="wikitable"

|-

! Book

! Description

|-

| '''''Measurement of the Transport Properties of Fluids'''''

|

''Measurement of the Transport Properties of Fluids'' is a book that is published by [[Wiley-Blackwell|Blackwell Science Inc.]] The topics that are included in this book are low and high temperature measurements, secondary coefficients, [[Diffusion equation|diffusion coefficients]], [[light scattering]], transient methods for [[thermal conductivity]], methods for thermal conductivity, falling-body viscometers, and vibrating [[Rheometer|viscometers]].<ref name="Measurement of the Transport Properties of Fluids review on Amazon">[http://www.amazon.com/dp/0632029978 Measurement of the Transport Properties of Fluids review on Amazon] retrieved 15 April 2010</ref>

|-

| '''''Solution Calorimetry'''''

|

''Solution Calorimetry'' is a book that gives background information on [[thermal analysis]] and [[calorimetry]]. Thermoanalytical and calorimetric techniques along with thermodynamic and kinetic properties are discussed in this book. Later volumes of this book discusses the applications and principles of these thermodynamic and kinetic methods.<ref name="Solution Calorimetry review on Amazon">[http://www.amazon.com/dp/044482085X Solution Calorimetry review on Amazon] retrieved 15 April 2010</ref>

|-

| '''''Equations of State for Fluids and Fluid Mixtures Part I'''''

|

''Equations of State for Fluids and Fluid Mixtures Part I'' is a book that gives up to date equations of state for fluids and fluid mixtures. This book covers all ways to develop equations of state. It gives the strengths and weaknesses of each equation. Some equations discussed include: [[virial]] equation of state cubic equations; generalized [[Van der Waals equation]]s; integral equations; perturbation theory; and stating and mixing rules. Other things that ''Equations of State for Fluids and Fluid Mixtures Part I'' goes over are: associating fluids, polymer systems, polydisperse fluids, self-assembled systems, ionic fluids, and fluids near their critical points.<ref name="Equations of State for Fluids and Fluid Mixtures Part I review on Amazon">[http://www.amazon.com/dp/0444503846 Equations of State for Fluids and Fluid Mixtures part I review on Amazon] retrieved 15 April 2010</ref>

|-

| '''''Measurement of the Thermodynamic Properties of Single Phases'''''

|

''Measurement of the Thermodynamic Properties of Single Phases'' is a book that gives an overview of techniques for measuring the thermodynamic quantities of single phases. It also goes into experimental techniques to test many different [[thermodynamic state]]s precisely and accurately. ''Measurement of the Thermodynamic Properties of Single Phases'' was written for people interested in measuring thermodynamic properties.<ref name="Flipkart review of Measurement of the Thermodynamic Properties of Single Phases">[http://www.flipkart.com/book/measurement-thermodynamic-properties-single-phases/0444509313 Flipkart review of Measurement of the Thermodynamic properties of Single Phases] retrieved 15 April 2010</ref>

|-

| '''''Measurement of the Thermodynamic Properties of Multiple Phases'''''

|

''Measurement of the Thermodynamic Properties of Multiple Phases'' is a book that includes multiple techniques that are used to study multiple phases of pure component systems. Also included in this book are the measurement techniques to obtain activity [[coefficients]], [[interfacial tension]], and [[Parameter|critical parameters]]. This book was written for researchers and graduate students as a reference source.<ref name="Measurement of the Thermodynamic Properties of Multiple Phases review on Amazon">[http://www.amazon.com/dp/0444519777 Measurement of the Thermodynamic Properties of Multiple Phases review on Amazon] retrieved 15 April 2010</ref>

|}

===Series of books on analytical and physical chemistry of environmental systems===

{| class="wikitable"

|-

! Book Name

! Description

|-

| '''''Atmospheric Particles'''''

|

''Atmospheric Particles'' is a book that delves into aerosol science. This book is aimed as a reference for graduate students and atmospheric researchers. ''Atmospheric Particles'' goes in depth on the properties of aerosols in the atmosphere and their effect. Topics covered in this book are: [[acid rain]]; [[heavy metals|heavy metal]] pollution; [[global warming]]; and [[photochemical]] smog. ''Atmospheric Particles'' also covers techniques to analyze the atmosphere and ways to take atmospheric samples.<ref name="Atmospheric Particles review">[http://www.flipkart.com/book/atmospheric-particles-harrison-roy-rene/0471959359 Flipkart review of Atmospheric Particles] retrieved 15 April 2010</ref>

|-

| '''''Environmental Colloids and Particles: Behaviour, Separation and Characterisation'''''

|

''Environmental Colloids and Particles: Behaviour, Separation and Characterisation'' is a book that discusses environmental [[colloid]]s and current information available on them. This book focuses on environmental colloids and particles in aquatic systems and soils. It also goes over techniques such as: techniques for sampling environmental colloids, size fractionation, and how to characterize of colloids and particles. ''Environmental Colloids and Particles: Behaviour, Separation and Characterisation'' also delves into how these [[colloid]]s and [[particle]]s interact.<ref name="Environmental Colloids and Particles: Behaviour, Separation and Characterisation review on amazon">[http://www.amazon.com/dp/0470024321 Amazon Review of Environmental Colloids and Particles: Behaviour, Separation, and Characterisation] retrieved 15 April 2010</ref>

|-

| '''''Biophysical Chemistry of Fractal Structures and Processes in Environmental Systems'''''

|

''Biophysical Chemistry of Fractal Structures and Processes in Environmental Systems'' is meant to give an overview of a technique based on [[fractal geometry]] and the processes of environmental systems. This book gives ideas on how to use [[fractal geometry]] to compare and contrast different [[ecosystems]]. It also gives an overview of the knowledge needed to solve environmental problems. Finally, ''Biophysical Chemistry of Fractal Structures and Processes in Environmental Systems'' shows how to use the fractal approach to understand the reactivity of [[Flocculation|flocs]], sediments, soils, microorganisms and [[humic]] substances.<ref name="Wiley page on Biophysical Chemistry of Fractal Structures and Processes in Environmental Systems">[http://www.wiley.com/WileyCDA/WileyTitle/productCd-0470014741.html Wiley on Biophysical Chemistry of Fractal Structures and Processes in Environmental Systems]. New York: Wiley. Retrieved 15 April 2010</ref>

|-

| '''''Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem'''''

|

''Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem'' is meant to be read by chemists and biologists that study environmental systems. Also, this book should be used as a reference for earth scientists, environmental geologists, environmental engineers, and professionals in microbiology and ecology. ''Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem'' is about how minerals, microorganisms, and organic components work together to affect [[terrestrial ecoregion|terrestrial systems]]. This book identifies that there are many different techniques and theories about minerals, microorganisms, and organic components individually, but they aren't often associated with each other. It further goes on to discuss how these components of soil work together to affect [[Terrestrial animal|terrestrial]] life. ''Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem'' gives techniques to analyze minerals, microorganisms, and organic components together. This book also gives a large sections on why environmental scientists working in the specific fields of minerals, microorganisms, and organic components of soil should work together and how they should do so.<ref name="Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem review">[http://www.flipkart.com/book/interactions-between-soil-particles-microorganisms/0471607908 Flipkart review of Interactions Between Soil Particles and Microorganisms: Impact on the Terrestrial Ecosystem]. Retrieved 15 April 2010.</ref>

|-

| '''''The Biogeochemistry of Iron in Seawater'''''

|

''The Biogeochemistry of Iron in Seawater'' is a book that describes how low concentrations of iron in [[Antarctica]] and the Pacific Oceans are a result of reduced chlorophyll for phytoplankton production.<ref name="SciTech Book News">SciTech Book News, Vol. 26, No. 2, June 2002.</ref> It does this by reviewing information from research in the 1990s. This book goes in depth about: chemical speciation; analytical techniques; transformation of iron; how iron limits the development of High Nutrient Low [[Chlorophyll]] areas in the [[pacific ocean]]<ref name="Amazon review of The Biogeochemistry of Iron in Seawater">[http://www.amazon.com/dp/0471490687 Review of Biogeochemistry of Iron in Seawater] retrieved 15 April 2010</ref>

|-

| '''''In Situ Monitoring of Aquatic Systems: Chemical Analysis and Speciation'''''

|

''In Situ Monitoring of Aquatic Systems: Chemical Analysis and Speciation'' is a book that discusses techniques and devices to monitor [[marine ecoregion|aquatic systems]] and how new devices and techniques can be developed. This book emphasizes the future us of micro-analytical monitoring techniques and [[microtechnology]]. ''In Situ Monitoring of Aquatic Systems: Chemical Analysis and Speciation'' is aimed at researchers and laboratories that analyze aquatic systems such as rivers, lakes, and oceans.<ref name="review of Insitu Monitoring of Aquatic Systems: Chemical Analysis and Speciation review">[http://search.barnesandnoble.com/In-Situ-Monitoring-of-Aquatic-Systems/Jacques-Buffle/e/9780471489795/ Review of ''In Situ'' Monitoring of Aquatic Systems: Chemical Analysis and Speciation from Barnes and Noble]. Retrieved 15 April 2010</ref>

|-

| '''''Structure and Surface Reactions of Soil Particles'''''

|

''Structure and Surface Reactions of Soil Particles'' is a book about soil structures and the molecular processes that occur in soil. ''Structure and Surface Reactions of Soil Particles'' is aimed at any researcher researching soil or someone in the field of [[anthropology]]. It goes in depth on topics such as: fractal analysis of particle dimensions; computer modeling of the structure; reactivity of humics; applications of atomic force microscopy; and advanced instrumentation for analysis of soil particles.<ref name="Review of Structure and Surface Reactions of Soil Particles">[http://www.lebooks.in/books/structure-surface-reactions-soil-particles-pan-ming-huang-f605dd78c7/9780471959366 Review of Structure and Surface Reactions of Soil Particles] retrieved 15 April 2010</ref>

|-

| '''''Metal [[Speciation]] and Bioavailability in Aquatic Systems, Series on Analytical and Physical Chemistry of Environmental Systems Vol. 3'''''

|

''Metal Speciation and Bioavailability in Aquatic Systems, Series on Analytical and Physical Chemistry of Environmental Systems Vol. 3'' is a book about the effect of [[trace metals]] on aquatic life.<ref name="Metal Speciation and Bioavailability in Aquatic Systems, Series on Analytical and Physical Chemistry of Environmental Systems Vol. 3 review">[http://www.amazon.com/dp/0471958301 Metal Speciation and Bioavailability in Aquatic Systems]. Series on Analytical and Physical Chemistry of Environmental Systems Vol. 3. Review on Amazon. Retrieved 15 April 2010</ref> This book is considered a specialty book for researchers interested in observing the effect of [[trace metals]] in the water supply. This book includes techniques to assess how [[bioassays]] can be used to evaluate how an [[organism]] is affected by [[trace metals]]. Also, ''Metal Speciation and Bioavailability in Aquatic Systems, Series on Analytical and Physical Chemistry of Environmental Systems Vol. 3'' looks at the limitations of the use of bioassays to observe the effects of [[trace metals]] on organisms.

|-

| '''''Physicochemical Kinetics and Transport at Biointerfaces'''''

|

''Physicochemical Kinetics and Transport at Biointerfaces'' is a book created to aid [[environmental scientist]]s in field work. The book gives an overview of chemical mechanisms, transport, kinetics, and interactions that occur in [[Environment (biophysical)|environmental systems]]. ''Physicochemical Kinetics and Transport at Biointerfaces continues from where ''Metal Speciation and Bioavailability in Aquatic Systems'' leaves off.<ref name="Physicochemical Kinetics and Transport at Biointerfaces review">[http://www.amazon.com/dp/0471498459 Physicochemical Kinetics and Transport at Biointerfaces review] retrieved 15 April 2010</ref>

|}

===Colored cover book and website series (nomenclature)===

IUPAC color codes their books in order to make each publication distinguishable.<ref name="History of IUPAC"/>

{| class="wikitable"

|-

! Title

! Description

|-

| '''''Compendium of Analytical Nomenclature'''''

|

One extensive book on almost all nomenclature written ([[IUPAC nomenclature of organic chemistry]] and [[IUPAC nomenclature of inorganic chemistry]]) by the IUPAC committee is ''[[Compendium of Analytical Nomenclature]]'' – The Orange Book, 1st edition (1978)<ref name="orange book">[http://www.iupac.org/objID/Source/sou89661252938339267969131 IUPAC orange book publication history]</ref> This book was revised in 1987. The second edition has many revisions that come from reports on nomenclature between 1976 and 1984.<ref name="orange book preamble">[http://old.iupac.org/publications/analytical\_compendium/ Orange Book Preamble] retrieved 15 April 2010</ref> In 1992, the second edition went through many different revisions which led to the third edition.<ref name="orange book preamble"/>

|-

| '''''Pure and Applied Chemistry'' (journal)'''

|

''[[Pure and Applied Chemistry]]'' is the official monthly journal of IUPAC. This journal first debuted in 1960. The goal statement for ''Pure and Applied Chemistry'' is to "publish highly topical and credible works at the forefront of all aspects of pure and applied chemistry."<ref name="offical journal">[http://www.iupac.org/publications/pac/ IUPAC Pure and Applied Chemistry] retrieved 15 April 2010</ref> The Journal itself is available by subscription, but older issues are available in the archive on the IUPAC website.

''Pure and Applied Chemistry'' was created as a central way to publish IUPAC endorsed articles.<ref name="First journal">[http://media.iupac.org/publications/pac/1960/pdf/0101x0003.pdf IUPAC Pure and Applied Chemistry Issue 1] retrieved 15 April 2010</ref> Before its creation, IUPAC didn't have a quick, official way to distribute new chemistry information.

Its creation was first suggested at The Paris IUPAC Meeting of 1957.<ref name="First journal"/> During this meeting the commercial publisher of the Journal was discussed and decided on. In 1959, the IUPAC Pure and Applied Chemistry Editorial Advisory Board was created put in charge of the journal. The idea of one journal being a definitive place for a vast amount of chemistry was difficult for the committee to grasp at first.<ref name="First journal"/> However, it was decided that the journal would reprint old journal editions to keep all chemistry knowledge available.

|-

| '''''Compendium of Chemical Terminology'''''

|

The ''[[Compendium of Chemical Terminology]]'', also known as The Gold Book, was originally worked on by [[Victor Gold (chemist)|Victor Gold]]. This book is a collection of names and terms already discussed in ''[[Pure and Applied Chemistry]]''.<ref name="Gold Book">[http://goldbook.iupac.org/about.html Gold Book Online] retrieved 15 April 2010</ref> ''Compendium of Chemical Terminology'' was first published in 1987.<ref name="History of IUPAC"/> The first edition of this book contains no original material, but is meant to be a compilation of other IUPAC works.

The second edition of this book was published in 1997.<ref name="Gold Book second edition">[http://old.iupac.org/publications/compendium/] retrieved 15 April 2010</ref> This book made large changes to the first edition of the ''Compendium of Chemical Terminology''. These changes included updated material and an expansion of the book to include over seven thousand terms.<ref name="Gold Book second edition"/> The second edition was the topic of an IUPAC [[XML]] project. This project made an [[XML]] version of the book that includes over seven thousand terms. The XML version of the book includes an open editing policy, which allows users to add excerpts of the written version.<ref name="Gold Book second edition"/>

|-

| '''''IUPAC Nomenclature of Organic Chemistry'' (online publication)'''

| ''IUPAC Nomenclature of Organic Chemistry'', also known as The Blue Book, is a website published by Advanced Chemistry Department Incorporated with the permission of IUPAC. This site is a compilation of the books ''A Guide to IUPAC Nomenclature of Organic Compounds'' and ''Nomenclature of Organic Chemistry''.<ref name="Blue Book">[http://www.acdlabs.com/iupac/nomenclature/ Online version of Blue Book] retrieved 15 April 2010</ref>

|}

==國際化學年==

[[File:Internationales Jahr der Chemie.svg|thumb|upright|150px|國際化學年標誌|left|]]

IUPAC和[[聯合國教科文組織]]是[[國際化學年]]（2011年）有關活動的主辦組織。<ref>[http://freitag.creighton.edu/OmahaACSfiles/N0848333.pdf United Nations Resolution 63/209: International Year of Chemistry.] 3 February 2009. Retrieved on 24 April 2010.</ref><ref name="note1">[http://www.chemistry2011.org/assets/42/IYC\_prospectus.pdf About IYC: Introduction.] 9 July 2009. Retrieved on 24 April 2010.</ref>IUPAC於[[意大利]][[都靈]]的大會上首次提出舉辦國際化學年。<ref name="International Year of Chemistry Prospectus">{{cite web|url=http://portal.acs.org/portal/PublicWebSite/membership/acs/getinvolved/CNBP\_021696 |title=International Year of Chemistry Prospectus |publisher=Portal.acs.org |date= |accessdate=8 June 2011}}</ref>聯合國教科文組織於2008年接受動議。<ref name="International Year of Chemistry Prospectus">[http://portal.acs.org/portal/PublicWebSite/membership/acs/getinvolved/CNBP\_021696 International Year of Chemistry Prospectus] retrieved 15 April 2010</ref>國際化學年的宗旨為提高公眾對化學的興趣及欣賞，同時鼓勵年輕人參與及為化學作貢獻。另外活動也回看化學如何大大提高了人們的生活。<ref name="IYC"/>

==目前的項目==

===IUPAC項目列表===

\* 項目號2009-012-2-200：[[配位聚合物]]及[[金屬-有機骨架]]：術語及命名法指引<ref name="IUPAC Current Projects">[http://www.iupac.org/indexes/Projects/years/2009 IUPAC Current Projects.] 9 May 2010. Retrieved on 9 May 2010.</ref>

\*\* 計劃的目標為：一、在配位聚合物領域提供有關術語和命名法（[[拓撲學]]術語，而非個別化合物名稱）的指引；二、確保這些指引被有關領域中的廣大研究學者接受；三、在領先的科學出版物對論文作者的指引中應用並提到這些術語和命名法。<ref name="CP and MOF Project">[http://www.iupac.org/web/ins/2009-012-2-200 CP and MOF Project.] 9 May 2010. Retrieved on 9 May 2010.</ref>

\* 項目號2009-032-1-100：為[[鹵素]][[化學鍵]]和其他鹵素原子的[[非共價鍵]]交互作用進行歸類。<ref name="IUPAC Current Projects">[http://www.iupac.org/indexes/Projects/years/2010 IUPAC Current Projects.] 15 February 2010. Retrieved on 17 February 2010.</ref>

\*\* 該計劃的目標是為鹵素成鍵反應進行定義，並為鹵素的分子交互作用分類。<ref name="Halogen Bonding Project">[http://www.iupac.org/web/ins/2009-032-1-100 Halogen Bonding Project.] 15 February 2010. Retrieved on 17 February 2010.</ref>

\* 項目號2009-048-1-600：為土壤和地表水源的環境物質監測作指引。<ref name="IUPAC Current Projects"/>

\*\* 項目目的為辨認新型污染物及其危害，並監測以前較少研究的污染物。另外，項目也會提供如何監測污染物的策略，並探討各種監測方法的利弊。<ref name="Pollutant Project">[http://www.iupac.org/web/ins/2009-048-1-600 IUPAC Current Projects.] 15 February 2010. Retrieved on 2 March 2010. Retrieved 15 April 2010</ref>

\* 項目號2009-034-2-700：研究[[鎘]]對人體健康的威脅。<ref name="IUPAC Current Projects"/>

\*\* 該項目旨在辨認人體在暴露在鎘之後的危害及反應。鎘目前在國際癌症研究中心列為致癌物。另外，項目也會研究鎘是如何進入人體的。<ref name="Cadium">[http://www.iupac.org/web/ins/2009-034-2-700 IUPAC Current Projects.] 15 February 2010. Retrieved on 2 March 2010.</ref>

\* 項目號2009-019-2-400：體積排阻色譜法等[[聚合物]]表徵法中的資料處理。對譜帶增寬等誤差來源的矯正。<ref name="IUPAC Current Projects"/>

\*\* 該項目旨在為聚合物表徵和測量提供準確度更高的實際方法。這能夠幫助體積排阻色譜法等聚合物表徵法實驗工具的製造商製造出更精確的產品。<ref name="IUPAC Current Projects"/>

==參見==

\* [[CAS號]]

\* [[國際生物化學與分子生物學聯合會]]（IUBMB）

\* [[國際化合物標識]]（InChI）

\* [[簡化分子線性輸入系統]]（SMILES）

\* [[國家標準技術研究所]]（NIST）

\* [[IUPAC命名法]]

\* [[中文IUPAC命名法]]

==參考資料==

{{Reflist|colwidth=30em}}

==外部鏈接==

\* {{official website|http://www.iupac.org}}

\*{{cite web|url=http://www.chem.qmul.ac.uk/iubmb/thermod/|title=Recommendations for nomenclature and tables in biochemical thermodynamics|author=Panel on Biochemical Thermodynamics|year=1994|publisher=G. P. Moss, [[Queen Mary University of London]]}}

{{國際科學理事會}}

[[Category:化学组织]]

[[Category:国际科学组织]]

[[Category:标准制订机构]]

[[Category:化学命名法]]

[[Category:成立于1919年的组织]]

[[af:IUPAC]]

[[ar:الاتحاد الدولي للكيمياء البحتة والتطبيقية]]

[[az:Beynəlxalq Nəzəri və Tətbiqi Kimya İttifaqı]]

[[be:IUPAC]]

[[bg:Международен съюз за чиста и приложна химия]]

[[bs:IUPAC]]

[[br:Unaniezh Etrevroadel ar Gimiezh Pur hag Arveret]]

[[ca:Unió Internacional de Química Pura i Aplicada]]

[[cs:Mezinárodní unie pro čistou a užitou chemii]]

[[cy:IUPAC]]

[[da:International Union of Pure and Applied Chemistry]]

[[de:International Union of Pure and Applied Chemistry]]

[[et:Rahvusvaheline Puhta ja Rakenduskeemia Liit]]

[[el:Διεθνής Ένωση Καθαρής και Εφαρμοσμένης Χημείας]]

[[es:Unión Internacional de Química Pura y Aplicada]]

[[eo:IUPAK]]

[[fa:آیوپاک]]

[[fr:Union internationale de chimie pure et appliquée]]

[[gl:IUPAC]]

[[ko:국제 순수·응용 화학 연합]]

[[hi:शुद्ध और अनुप्रयोगिक रसायन का अंतरराष्ट्रीय संघ]]

[[hr:Međunarodna unija za čistu i primijenjenu kemiju]]

[[id:International Union of Pure and Applied Chemistry]]

[[ia:Union International de Chimia Pur e Applicate]]

[[it:IUPAC]]

[[ka:თეორიული და გამოყენებითი ქიმიის საერთაშორისო კავშირი]]

[[lv:Starptautiskā teorētiskās un praktiskās ķīmijas savienība]]

[[lb:International Union of Pure and Applied Chemistry]]

[[lmo:IUPAC]]

[[hu:IUPAC]]

[[mk:Меѓународна унија за чиста и применета хемија]]

[[ml:ഇന്റർനാഷണൽ യൂണിയൻ ഓഫ് പ്യുർ ആന്റ് അപ്ലൈഡ് കെമിസ്ട്രി]]

[[mr:शुद्ध व उपयोजित रसायनशास्त्राची आंतरराष्ट्रीय संस्था]]

[[ms:IUPAC]]

[[nl:IUPAC]]

[[ja:国際純正・応用化学連合]]

[[no:IUPAC]]

[[oc:Union Internacionala de Quimia Pura e Aplicada]]

[[nds:International Union of Pure and Applied Chemistry]]

[[pl:Międzynarodowa Unia Chemii Czystej i Stosowanej]]

[[pt:União Internacional de Química Pura e Aplicada]]

[[ro:Uniunea Internațională de Chimie Pură și Aplicată]]

[[qu:IUPAC]]

[[ru:Международный союз теоретической и прикладной химии]]

[[sq:IUPAC]]

[[simple:International Union of Pure and Applied Chemistry]]

[[sk:Medzinárodná únia čistej a aplikovanej chémie]]

[[sl:Mednarodna zveza za čisto in uporabno kemijo]]

[[sr:Међународна унија за чисту и примењену хемију]]

[[sh:IUPAC]]

[[fi:IUPAC]]

[[sv:International Union of Pure and Applied Chemistry]]

[[ta:பன்னாட்டு தனி மற்றும் பயன்பாட்டு வேதியியல் ஒன்றியம்]]

[[th:สหภาพเคมีบริสุทธิ์และเคมีประยุกต์ระหว่างประเทศ]]

[[tr:Uluslararası Temel ve Uygulamalı Kimya Birliği]]

[[uk:IUPAC]]

[[ur:بین الاقوامی اتحاد براۓ خالص و نفاذی کیمیاء]]

[[vi:IUPAC]]

[[wuu:优八克]]