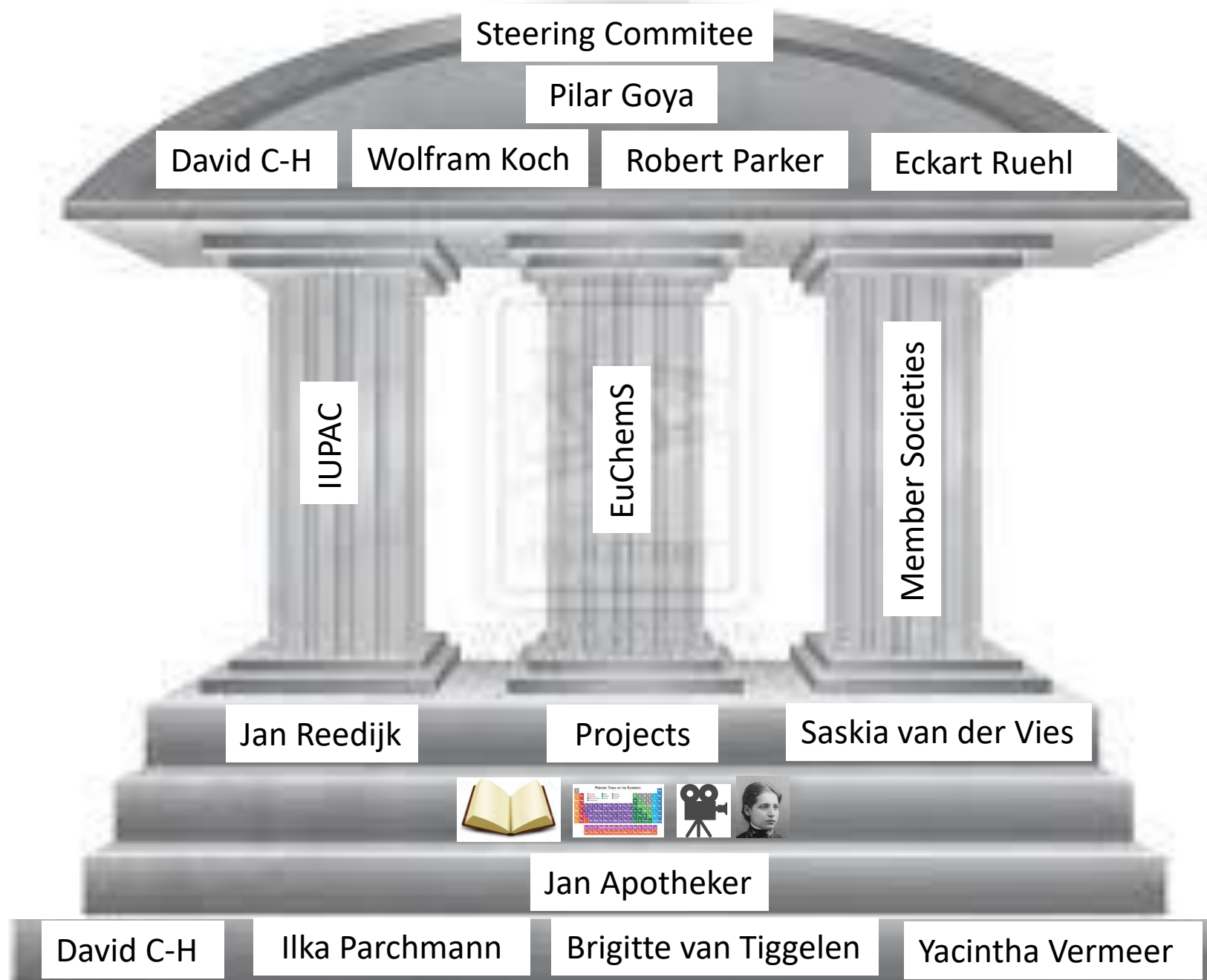




International Year of the Periodic Table

David Cole-Hamilton

General Assembly



Target Audience

EuChemS Projects



Women in their element. The Historic Role of Female Scientists in the (Pre)History of the Periodic Table edited by Annette Lykknes and Brigitte van Tiggelen.



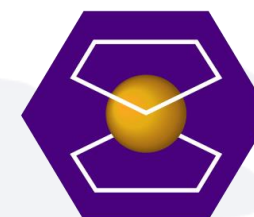
Setting their Table: Women and the Periodic Table of Elements. Murcia, Spain, 11-12th Feb.



EYCN Video Competition (Yacintha Vermeer) **Chair EYCN to report**



Video Game



The Wilkinson
Charitable Foundation

<https://wilkinsonfoundation.org.uk>

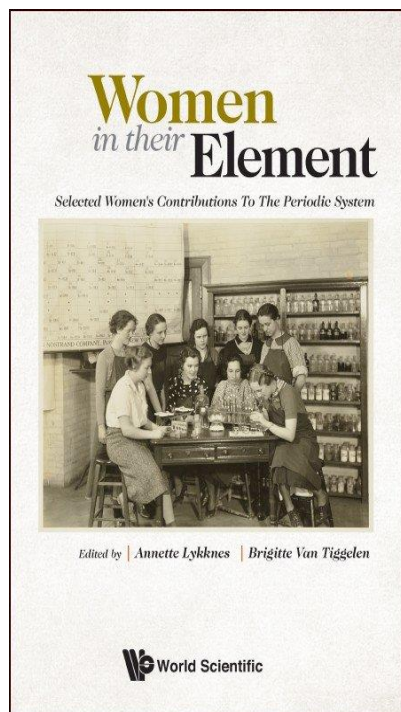


Periodic Table for Schools

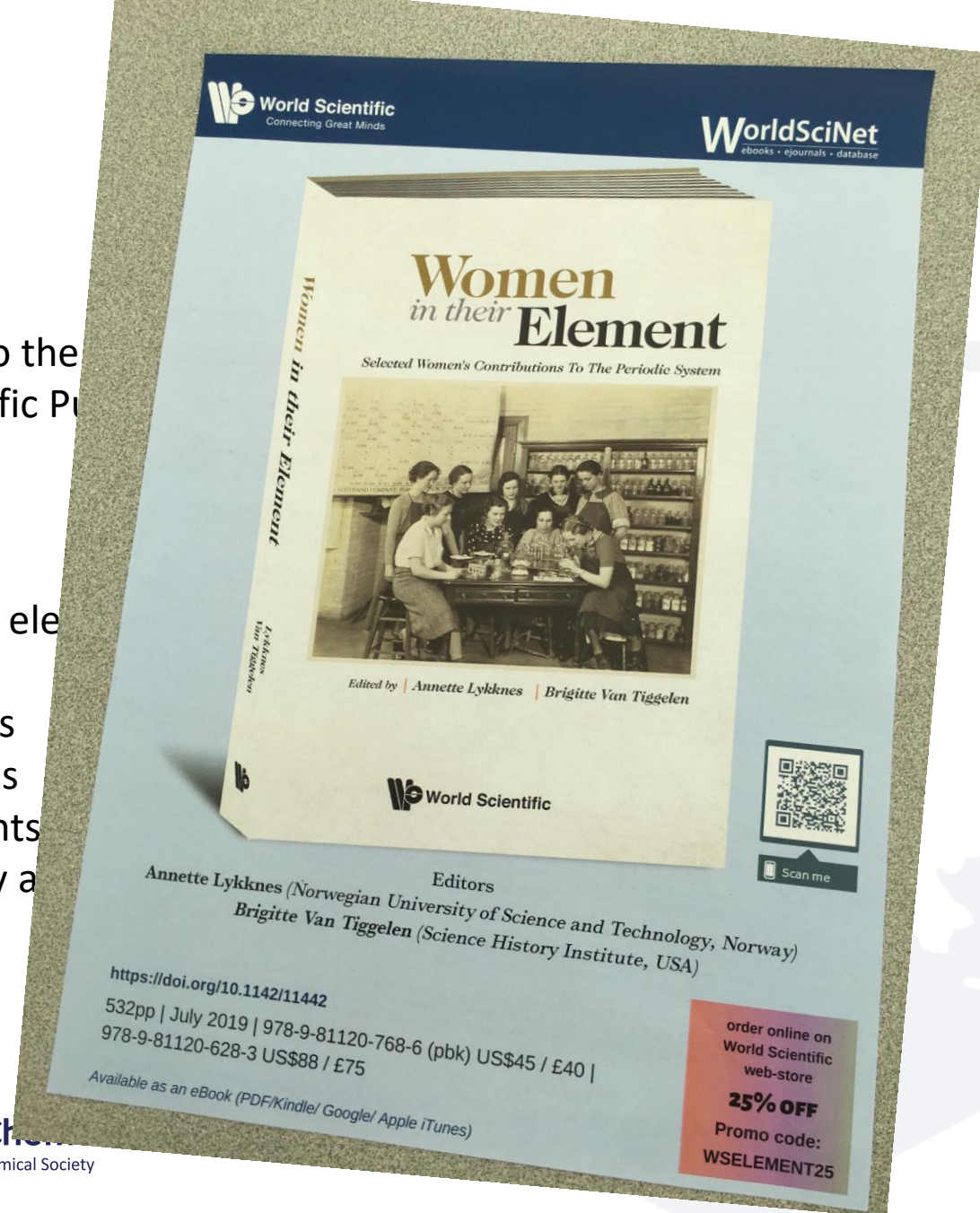


Women in their Element

Women in Their Element Selected Women's Contributions to the
By: Annette Lykknes and Brigitte Van Tiggelen, World Scientific P
556 pages, <https://doi.org/10.1142/11442>.



- The 38 chapters include
- understanding the concept of ele
 - identifying properties
 - developing analytical methods
 - mapping the radioactive series
 - finding applications of elements
 - drawing attention to+ toxicity a



Setting their Table: Women and the Periodic Table of Elements International Symposium, Murcia February 11-12, 2019

- Global Women's Breakfast organized by IUPAC



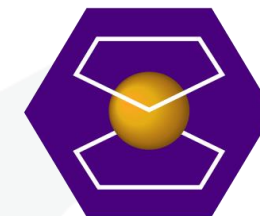
Unveiling of 10 laureates of the IUPAC Periodic Table of Younger Chemists.



Working Party on the History of Chemistry

Video Game

Elemental Escapades – A Periodic Table Adventure



The Wilkinson
Charitable Foundation

Launched European Parliament 22nd January 2019

Available at IYPT launch, Paris 29th January 2019

Updated April 2019

- 2125 downloads



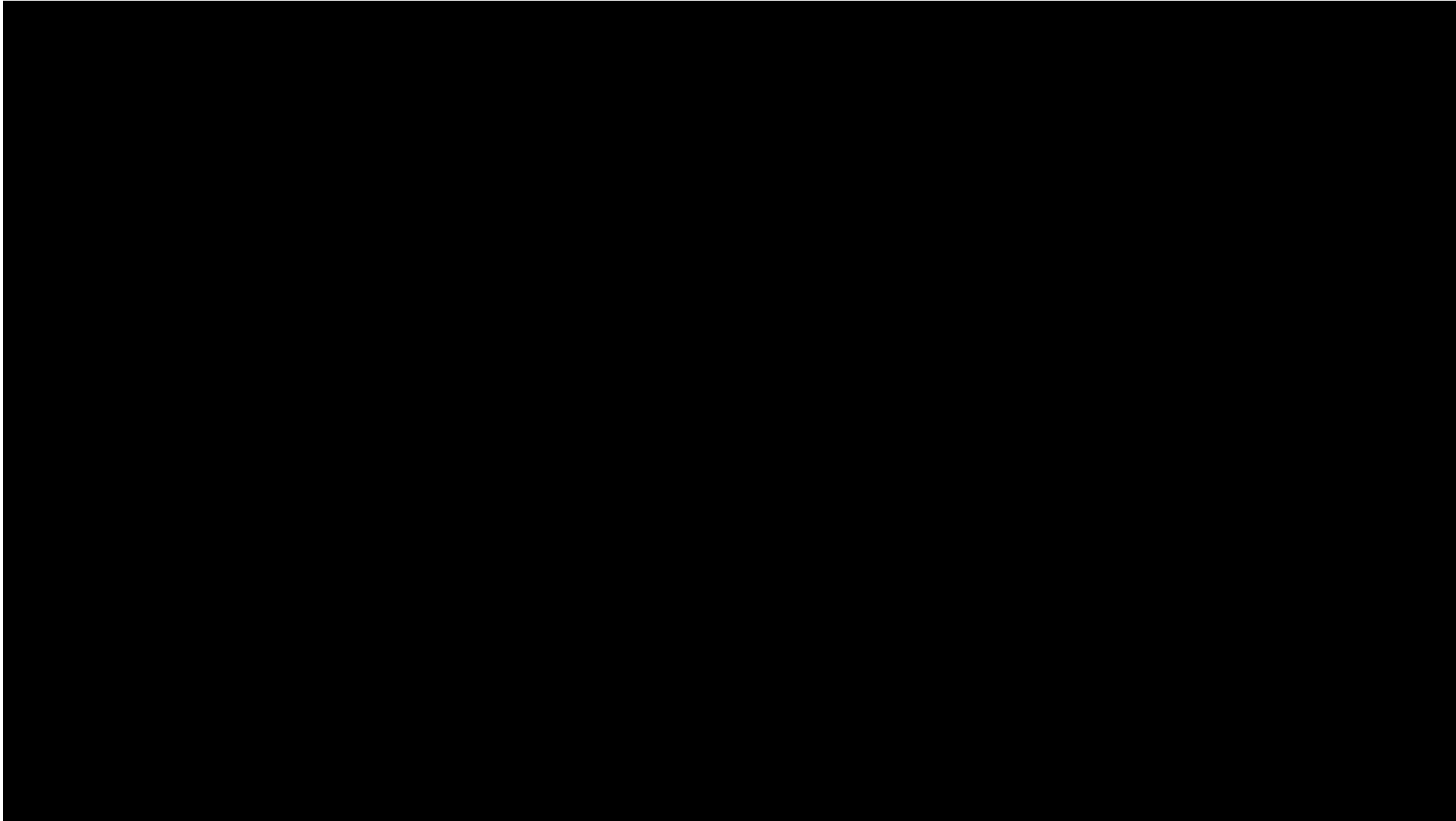
Nick Cole-Hamilton
Sandy Russell
Scott Darcy

<http://bit.ly/euchems-pt>



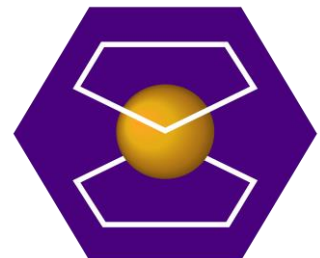
EuChemS General Assembly, Bucharest 3rd October, 2019

Video Game: Elemental Escapades: A Periodic Table Adventure



<http://bit.ly/euchems-pt>

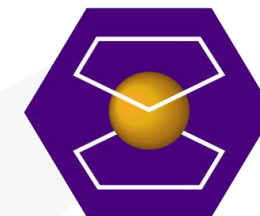
Sponsored by the Wilkinson Charitable Foundation



The Wilkinson
Charitable Foundation

Video Game

Elemental Escapades – A Periodic Table Adventure



The Wilkinson
Charitable Foundation

Launched European Parliament 22nd January 2019

Available at IYPT launch, Paris 29th January 2019

Updated April 2019

- 2090 downloads

International edition 30th September 2019

- French, German, Spanish, Italian, Croatian,
- Serbian, Dutch, Polish, Romanian, Greek and English



Thanks so much to EYCN for arranging the translations.

<http://bit.ly/euchems-pt>



EuChemS General Assembly, Bucharest 3rd October, 2019

Nick Cole-Hamilton
Sandy Russell
Scott Darcy

<http://bit.ly/euchems-pt>

Mendeleev Society Meeting

Celebrating D.I. Mendeleev's Periodic System. A Historical Perspective, September 10-13, 2019, St Petersburg,



PERИОДИЧЕСКАЯ СИСТЕМА ЭЛЕМЕНТОВ
Д. И. МЕНДЕЛЕЕВА

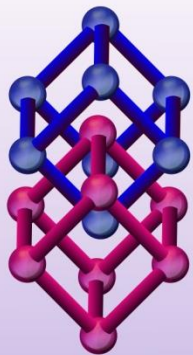
| | 0 | I | II | III | IV | V | VI | VII | VIII |
|----|----|-----|----|------|-----|------|-----|-----|----------|
| 1 | - | H | | | | | | | |
| 2 | He | Li | Be | B | C | N | O | F | |
| 3 | Ne | Na | Mg | Al | Si | P | S | Cl | |
| 4 | Ar | K | Ca | Sc | Ti | V | Cr | Mn | Fe Co Ni |
| 5 | | Cu | Zn | Ga | Ge | As | Se | Br | |
| 6 | Kr | Rb | Sr | Y | Zr | Nb | Mo | | Ru Rh Pd |
| 7 | | Ag | Cd | Jn | Sn | Sb | Te | J | |
| 8 | Xe | Cs | Ba | La | Ce | Pr | Nd | Jl | |
| 9 | | Sm | Eu | Gd | Tb | Dy | Ho | Er | |
| 10 | | Tu | Yb | Lu | Hf | Ta | W | Re | Os Jr Pt |
| 11 | | Au | Hg | Tl | Pb | Bi | Po | - | |
| 12 | Rn | - | Ra | Ac | Th | Pa | U | | |
| | R | R'O | RO | R'O' | RO' | R'O' | RO' | RO' | RO' |
| | | | | RH' | RH' | RH' | RH' | | |

Working Party on the History of Chemistry

 **EuChemS**
European Chemical Society

Mendeleev's teaching wall chart, 1876

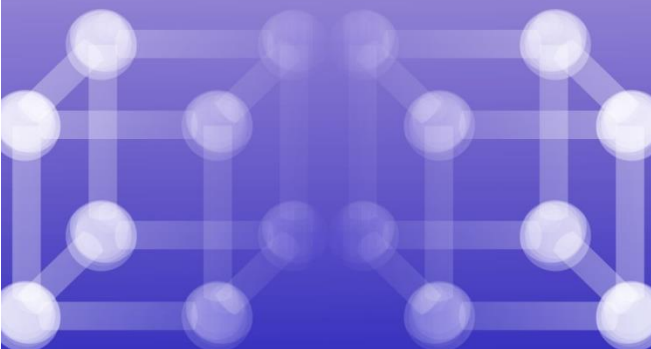
EuChemS General Assembly, Bucharest 3rd October, 2019



EICC-5

5th EUCHEMS
INORGANIC
CHEMISTRY
CONFERENCE

Moscow,
24-28 June
2019



eicc5.ru

ORGANIZERS



EuChemS

European Chemical Society



Russian Academy of Sciences



МИНИСТЕРСТВО НАУКИ
И ВЫСШЕГО ОБРАЗОВАНИЯ
РОССИЙСКОЙ ФЕДЕРАЦИИ

ИНЧОС



Liverpool

August 2018



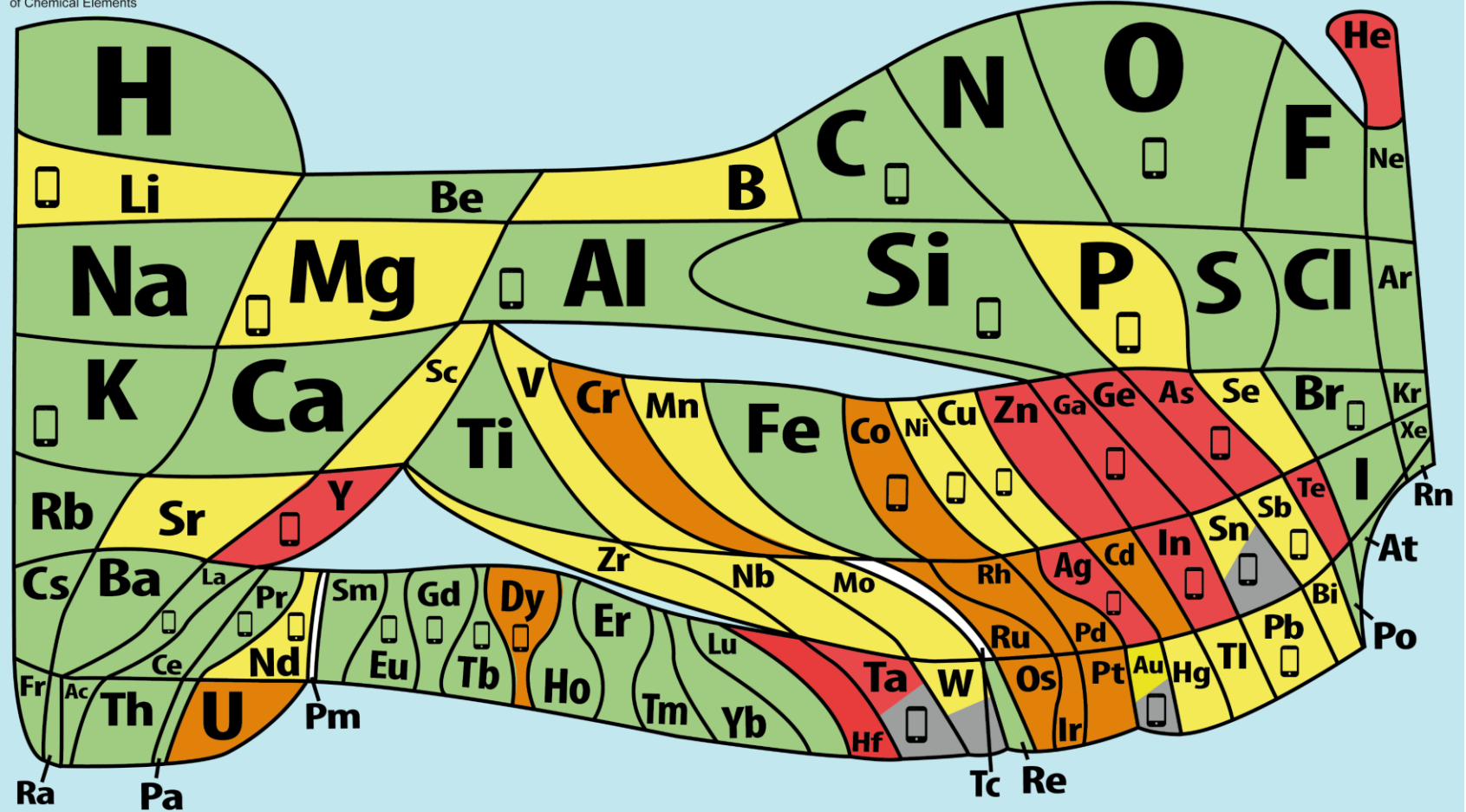
United Nations
Educational, Scientific and
Cultural Organization



2019
International Year
of the Periodic Table
of Chemical Elements

The 90 natural elements that make up everything

How much is there? Is that enough?



- Serious threat in the next 100 years**
- Rising threat from increased use**
- Limited availability, future risk to supply**
- Plentiful Supply**
- Man Made**
- From conflict minerals**
- Elements used in a smart phone**

Sponsor's
Logo

Read more and play the video game www.euchems.org/IYPT



The 90 natural elements that make up everything

How much is there? Is that enough?

18'

Task Group

Saskia van der Vies, Christophe Coperet, **Nicola Armaroli**, Jelena Lazic, Alex Schiphorst, David Cole-Hamilton (Chair) - assisted by Elena Lenci, Katarina Josefowska,

Special Thanks

Suzanne Issa
Reprographics,
St. Andrews

Sub-group "IYPT2019-EuCheMS"

Jan Apotheker (Chair), Brigitte van Tiggelen, Ilka Parchmann, Jacintha Vermeer
Input from Jan Reedijk (IUPAC), Robert Parker

Ra Ac Pa

Tc Re



Serious threat in the next 100 years



Rising threat from increased use



Limited availability, future risk to supply



Plentiful Supply



Synthetic



From conflict minerals



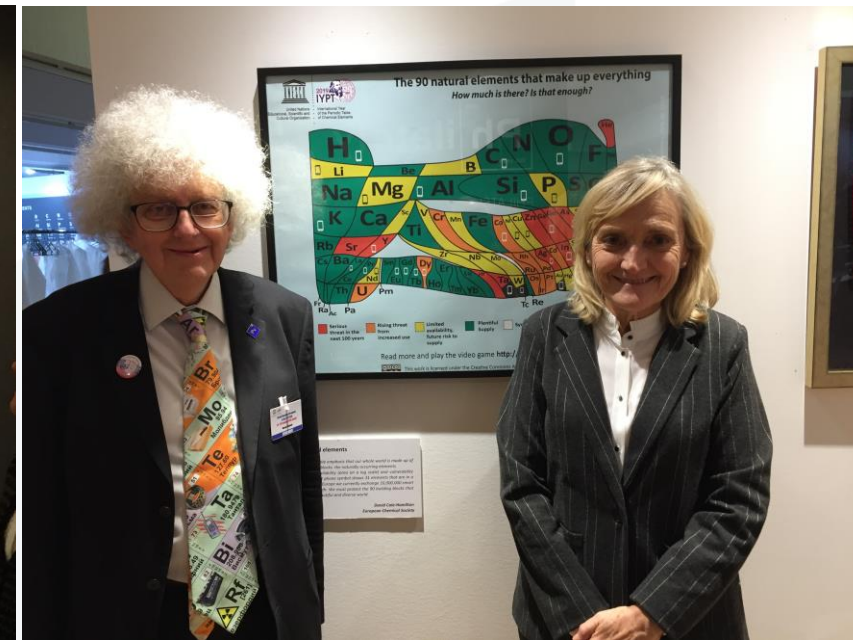
Elements used in a smart phone



>30 Languages including Romanian



Launch European Parliament 22nd January 2019,
Catherine Stihler and Clare Moody MEPs



IYPT Launch, Paris, 29th January



Historical landmark
ABEA Crete

稀缺元素週期表

生活中不可或缺的稀缺元素，大約是由30種左右的元素所組成，其中過半元素的取得日益困難，然而，現代人更追求著永續與環保，且未被有效的處理回收，不但造成環境污染，更造成資源的浪費。看！與日常生活息息相關的這些元素，實際上正逐漸被人類消耗殆盡；有限地殼中蘊藏的數量，只能再維持數十年，因此亟需開發環境再使用的方法。歐洲化學會 (EuChemS) 發怖了下面這個造型獨特的週期表，稱為「稀缺元素週期表」，以根據大小展示各元素在地球上的含量，並通過不同的顏色標示，顯示哪些元素供應量有限？如不能繼續使用，哪些元素存儲將不受人類使用？

聯合國訂定2019年為「國際化學元素週年」，期許藉由元素的推廣與認識，讓稀缺元素變成你與生活中的一部分，並凸顯永續與循環使用元素的必要性。

構成萬物的90種天然元素
地球上有多少呢？足夠嗎？

想了解更多資訊請上 <http://bit.ly/euchemst>

Exhibition Taiwan

元素問答揪揪樂

快來測試你對元素了解多少?

主辦：英國University of St. Andrews (David J. Cole Hamilton) 榮譽教授 (新加坡化學會會員) 與中國化學會與歐洲化學會中文編輯組、
共同舉辦：國立臺灣大學化學系、聯合市立台北科技大學化學系、國立中央大學化學系、國立成功大學化學系、國立清華大學化學系、
國立交通大學化學系、國立陽明交通大學化學系、國立中央研究院化學研究所、國立中央研究院化學研究所



Travelling Exhibition
Japan

Italian Roadshow <3000 teachers and students



Portuguese CS Meeting



Portuguese Science Summit



PT given to all Turkish schools

GDCh Mugs

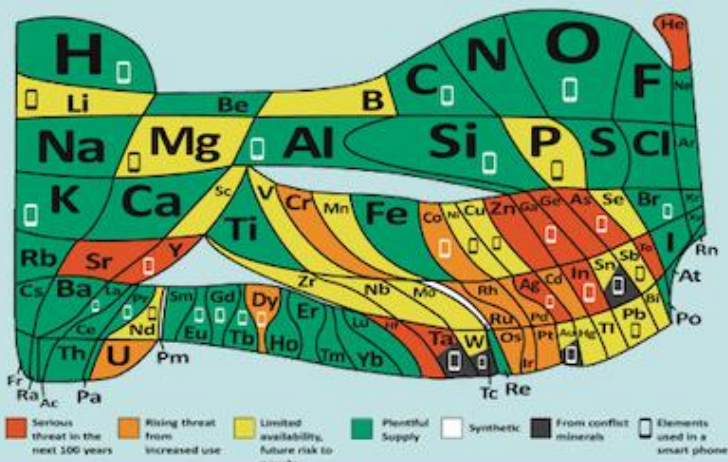


Dutch teachers' event



Israeli teachers' event

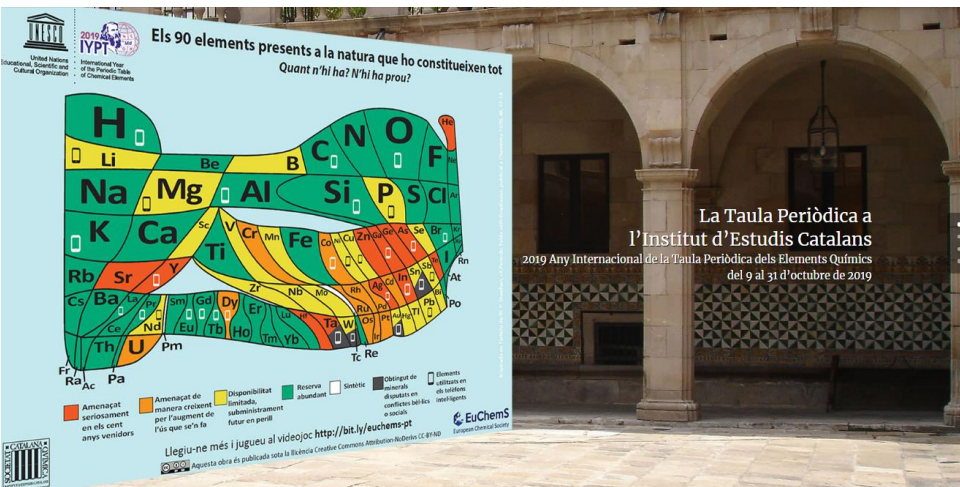




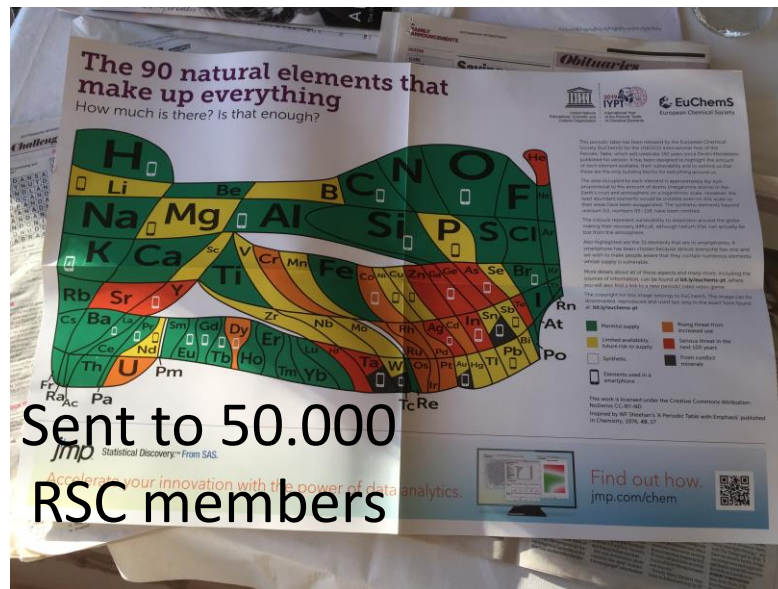
Swiss Platform to celebrate the 2019 International Year of the Periodic Table of Chemical Elements



IYPT 2019 Initiatives in Switzerland ▼ Initiatives Worldwide Submit Initiative



Catalan Conference on the Periodic Table



RSC Summer Party and Exhibition

> 20 lectures EuChemS Professional Networks: Education, Green and Sustainable Chemistry, EYCN (EYCM); ACS Exhibitions IYPT opening ceremony, RSC, Edinburgh Festival, Royal Society of Edinburgh, Scottish Parliament

RSC IYPT Exhibition



The Scores
St Andrews
3rd October 2019

CELEBRATING
150 YEARS
PERIODIC TABLE

15
June
2019

Universiteit Antwerpen
Campus Groenenborger

Groenenborgerlaan 171, building T
2020 Antwerpen
Starting at 9h30

Eric Scerri
University of California
"Celebrating the Sesquicentennial
of the Periodic Table: the Past
and the Present"

Sammy Verbruggen
Universiteit Antwerpen
"Photocatalysis: Using Sunlight
to Clean the Air"

Jan Tytgat
Umicore
"Trends in Li-ion Batteries
Chemistry"

www.KVCV.be/IYPT



| | | |
|--|---|--|
| Группа VI R'O ³ или RO ³ | Группа VII R'O ³ | Группа VIII (переходы от I) R'O ³ или RO ⁴ |
| RH ³ | RH | |
| O=16 OH ² O, O ² O ² OM ² O ² R, HOH | F=19 FH, BF, SiF ⁴ CaF ² , KF, KHF ² | |
| S=32 SH, SM, S ² M ² P ² O ⁵ , SO ² , SO ³ , X(Ba ² SO ⁴) | Cl=35,5 ClH, ClM, ClCl ₂ ClOH, ClO ² H, AgCl | |
| Cr=52 CrCl ₂ , CrCl ₃ , Cr ² O ₃ CrO ² K, CrO ² Cl ₂ | Mn=55 MnK ² O, MnK ² O ² MnCl ² , MnO, MnO ₂ | Fe=56 FeK ² O, FeS ₂ FeO, Fe ₂ O ₃ FeK ² Cr ² |
| Se=78 | Br=80 | Co=59 CoX ₂ CoX ³ CoX ² 5NH ⁴ CoK ² Cr ² |
| | | Ni=58 NiX ₂ NiO ₄ NiSO ⁴ NH ⁴ NiK ² Cr ² |

Periodische Gesetzmässigkeit der Elemente nach Mendelejeff.

| | | | | |
|--|--|---|---|---|
| Gruppe IV RH ⁴ RO ² | Gruppe V RH ³ R ² O ⁵ | Gruppe VI RH ² RO ³ | Gruppe VII RH R ² O ⁷ | Gruppe VIII RO ⁴ |
| N=14 V=51 | P=31 Cr=52 | O=16 S=32 Cr=52 | F=19 Cl=35,5 Mn=55 | Fe=56, Co=59 |
| Cu [Ar]3d ¹⁰ 4s ¹ Copper | Zn [Ar]3d ¹⁰ 4s ² Zinc | Ga [Ar]3d ¹⁰ 4s ¹ 4p ¹ Gallium | Ge [Ar]3d ¹⁰ 4s ¹ 4p ² Germanium | As [Ar]3d ¹⁰ 4s ¹ 4p ³ Arsenic |
| 47 107,870 2210 960,8 10,5 | 48 112,40 765 320,9 8,45 | 49 114,82 2000 158,7 7,31 | 50 118,69 2270 630,5 7,30 | 51 121,75 1380 449,5 6,62 |
| Ag | Cd | In | Sn | Sb |
| 52 127,60 2380 969,8 10,5 | | | | Te |

Periodic Table of food boxes, Spanish School




New Chemistry Building
W. Australia




and us: its histo
rcity 22 Janua


IYPT Closing Ceremony Tokyo 5th December, 2019



| | | | | |
|--------------------------|---------------------------|-----------------------------|----------------------------|-----------------------------|
| I 53 Iodine | Y 39 Yttrium | Pt 78 Platinum | Ca 20 Calcium | K 19 Potassium |
|--------------------------|---------------------------|-----------------------------|----------------------------|-----------------------------|



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2019
IYPT
International Year
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of Chemical Elements

Legacy?



EuChemS will supply the bags at the closing ceremony