

國立臺北大學自然資源與環境管理研究所

102 學年度第二學期『環境災害與風險管理』

課程講義 (6)：核能發電與輻射災害 Nuclear Power Plants and Radiation Hazards

S.: Smith, K., *Environmental Hazards – Accessing Risk and Reducing Disaster*, 6th Edition, Routledge, London, 2013.

International Atomic Energy Agency (<http://www.iaea.org/>) => [Nuclear Safety & Security](#)

Dead links but remarkable (<http://www.insc.anl.gov/pwrmaps/map/>)

<http://www.aec.gov.tw/核能安全--3.html>;

<http://wapp4.taipower.com.tw/nsis/index.php>

<http://vm.nthu.edu.tw/science/shows/nuclear/safety/index.html>

- NUCLEAR CHEMISTRY (http://preparatorychemistry.com/bishop_book_18_ebook.pdf)
 - Nuclide => Element Symbol, Mass Number (Nucleon Number), Atomic Number
 - Nuclear Stability
 - Emission (Radiation)
 - ⇒ Alpha Emission => Alpha Particle (Helium Nucleus ${}^4_2\text{He}^{2+}$) + Energy
 - ⇒ Beta Emission => Electron + Energy
 - ⇒ Gamma Emission => Positron Emission => Energy (Photon)
 - ⇒ α 粒子相當於氦的原子核可被紙所阻擋， β 粒子相當於電子可被鋁箔所阻擋， γ 射線則具有高穿透性。
 - Nuclear Equations => Mass number; Atomic number
 - Radioactive Decay => Half-Life
 - Nuclear Fission
 - ⇒ Chain Reaction => Control Rod
 - ⇒ Nuclear Fusion
- RADIATION SAFETY
 - http://www.stanford.edu/dept/EHS/prod/researchlab/radlaser/manual/rad_safety_manual.pdf
- RADIOACTIVE WASTE
 - <http://www.world-nuclear.org/info/Nuclear-Fuel-Cycle/Nuclear-Wastes/Radioactive-Waste-Management/>
- NUCLEAR DISASTERS
 - International Nuclear and Radiological Event Scale (INES)
 - ⇒ <http://www.iaea.org/Publications/Factsheets/English/ines.pdf>
 - ⇒ <http://zh.wikipedia.org/wiki/國際核事件分級表>
 - Three Mile Island Accident (1979)
<http://vm.nthu.edu.tw/science/shows/nuclear/safety/index6.html>
 - Chernobyl Disaster (1986) <http://vm.nthu.edu.tw/science/shows/nuclear/safety/index5.html>
 - Fukushima Nuclear Disaster (2011)
http://wapp4.taipower.com.tw/nsis/4/4_3.php?firstid=4&secondid=3&thirdid=1