

PRESENTATIONS/PAPERS ON CURRENT TOPICS

Over the semester, I am asking you to read and digest a recent paper in at least two of the following four areas:

- A-- Stellar evolution and nucleosynthesis
- B-- Nuclear astrophysics
- C-- Galactic chemical evolution
- D-- Observations pertinent to questions of nucleosynthesis

You may choose a paper from your own scanning of the literature or from a list I maintain. To give you a flavor of what I expect I given below the initial list I provided to the 2012 (a long time ago!) class when the areas were just three (A, B, and C).

I expect a short paper on why the chosen paper provides novel information and is relevant to the topic of 'nucleosynthesis'. In addition to a written paper, I expect each student to give at least two 10 minute presentations in class. Volunteers welcomed!

Prior to an in-class presentation, I expect the presenting student to discuss their paper/presentation with me in my office no later than the afternoon before the class - and preferably earlier!

A1 - Beta decays of isotones with neutron magic number $N=126$ and r-process nucleosynthesis

Susuki et al. 2012, Phys. Rev. C, 85, 015802

A2 - Primary gamma-ray spectra in ^{44}Ti of astrophysical interest

Larsen et al. 2012, Phys. Rev. C, 014320

A3 - $^{96}\text{Zr}(n,\gamma)$ measruement at the n_TOF facility at CERN

Tagliente et al. 2011, Phys. Rev. C, 055802

A4 - Reanalysis of the astrophysical $S(E)$ factors of the $^6\text{Li}(d,\alpha)^4\text{He}$, $^7\text{Li}(p,\alpha)^4\text{He}$ and $^6\text{Li}(p,\alpha)^3\text{He}$ reactions

Wang et al. 2012, J. Phys. G, 39, 015201

A5 - Cross sections for proton-induced reactions on Pd isotopes at energies relevant for the gamma-process

Dillman et al. 2011, Phys. Rev. C, 84 015802

B1 - Lithium and sodium in the globular cluster M4. A main sequence star with Li compatible with the cosmological value: nature or nurture?

Monaco et al. 2011 astro-ph 1108.0138

B2 - An extremely primitive star in the Galactic halo

Caffau et al. 2011 Nature 477, 67

B3 - A new candidate for probing Population III nucleosynthesis with carbon-enhanced damped Lyman-alpha systems

Cooke et al. astro-ph 1201.1004

B4 - Attempt to detect primordial ^{244}Pu on Earth

Lachner et al. 2012, Phys. Rev. C, 85, 015801

B5 - From convection to explosion: end-to-end simulation of Type Ia supernovae

Nonaka et al. 2011, astro-ph 1111.2059

C1 - The curious conundrum regarding sulphur and oxygen abundances in planetary nebulae

Henry et al. 2011 astro-ph 1109.2491

C2 - Detection of pristine gas two billion years after the big bang

Fumagalli et al. 2011, Science, 334, 1245

C3 Chemical evolution of the Milky Way: the origin of phosphorus

Cescutti et al. astro-ph 1112.3824

The Galactic evolution of phosphorus

Caffau et al. 2011 A&A, 532, 98

C4 - The most metal-poor damped Lyman-alpha systems: insights into chemical evolution in the very metal-poor regime

Cooke et al. 2011, MNRAS, 417, o534

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