

# Astronomy with Radioactivities V: "From Gamma Rays to Stardust"

(Final Program)

September 5-9, 2005: Clemson University, at the Madren Center (on the golf course)

Program Version 05. Sep 05

## Sunday, September 4

Welcome Reception: 7pm at the Madren Center

## Monday, September 5

9:00 AM Registration outside the main auditorium

12:00 PM Lunch

1:30 PM Welcome Remarks

1:45 PM Opening Remarks

## Production and Ejection of Radioisotopes: Sources

2:00 PM A Review of Massive Star Evolution

2:30 PM Signatures of Isotopes in SN Ia & Cosmology

2:50 PM Fe60 synthesis in massive stars: What you'd like to know and do not (yet) know

3:05 PM Al26 synthesis in massive stars: What you'd like to know and do not (yet) know

3:20 PM Coffee Break

3:50 PM The Challenge to Understanding Al-26 Emission from OB Associations

4:10 PM 26Al production from gamma-Velorum: point source or diffuse emission at 1.8 MeV?

4:30 PM The runaway OB field star population: origin and implications

5:00 PM Searches for Additional Stars with Detectable U and Th

5:30 PM Nucleocosmochronology and the r Process

6:00 PM End of Daytime Program

Chris **Przirembel**

Dieter **Hartmann**

Alexander **Heger**

Peter **Höflich**

Marco **Limongi**

Alessandro **Chieffi**

Richard **Rothschild**

Nami **Mowlavi**

Hans **Zinnecker**

Timothy C **Beers**

Brad **Meyer**

## Tuesday, September 6

9:00 AM Core Collapse Physics

9:40 AM A new Core Collapse Mechanism

10:00 AM Poster Advertisements

10:20 AM Coffee Break

10:50 AM Changes to the r-Process Paradigm

11:20 AM Influence of the Explosion Mechanism on the Ejecta of Core Collapse Supernova

11:45 AM Radioactivity during Solar Flares from the observation of the Annihilation line

12:00 PM Lunch

2:00 PM Nucleosynthesis in intermediate-mass AGB stars

2:20 PM The nature of the strong s-component and its observational counterpart: the Pb stars

2:40 PM s-process in Extremely Metal Poor (EMP) Massive Stars

3:00 PM s-Process Abundances in Halo Blue Stragglers: Mass Transfer and Galactic Mergers

3:20 PM Radioactivities from novae

3:40 PM Numerical simulations of the spreading of accreted matter on white dwarfs.

4:00 PM Coffee Break

## 4:30 PM Propagation and Fate of Radioisotopes: Source Vicinity

4:30 PM The Production of Cosmic Rays in Young Supernova Remnants

5:00 PM Simulating the Turbulent Mixing of Metals and Radioactivities in the ISM

5:30 PM Cosmic Ray Isotopes, WR Stars, and the Superbubble Origin of Galactic Cosmic Rays

6:00 PM A New Approach to the Solution of Large Thermonuclear Burning Networks

6:30 PM End of Daytime Program

7:00 PM Evening Reception at Don Clayton's home in Seneca, SC

Adam **Burrows**

Qui-he **Peng**

Chris **Fryer**

William Raph **Hix**

Ben Zion **Kozlovsky**

Amanda **Karakas**

Roberto **Gallino**

Lih-Sin **The**

Jeremy **King**

Margarida **Hernanz**

Jacob Lund **Fisker**

Don **Ellison**

Dinshaw S. **Balsara**

Walter (Bob) **Binns**

Mike **Guidry**

## Wednesday, September 7

9:00 AM The Chemical Evolution of Dust: The Delayed Injection of PAH's into the ISM

9:30 AM Effects of Stellar Evolution on the Nature of SiC Grains in Outflows of C Stars

9:45 AM Mass & Mass-Loss Rate of the Precursor of the Oxygen-Rich SNR in NGC 4449

9:55 AM Observation of the shrapnel around the Vela SNR

10:05 AM Nuclear Diagnostics of the Cosmos

10:35 AM X- or Gamma-Rays from Supernovae in Glacial Ice

10:50 AM Coffee Break

## 11:20 AM Radioisotope Decay and Annihilation: Gamma-Rays

11:20 AM Highlights from INTEGRAL

11:40 AM Gamma-Ray Observational News from INTEGRAL: 26Al and 60Fe

12:00 PM An INTEGRAL/IBIS view of young SNRs through the 44Ti gamma-ray lines

12:20 PM A Comprehensive Search for Gamma-ray Lines with INTEGRAL/SPI

12:35 PM CGRO?OSSE Observations of e+ Annihilation: Quantifying the Disk Component

12:50 PM Conference Group Photo

1:00 PM Lunch

Eli **Dwek**

Angela **Speck**

Christina **Lacey**

Hiroshi **Tsunemi**

Stan **Woosley**

Yuko **Motizuki**

Christoph **Winkler**

Roland **Diehl**

Mathieu **Renaud**

Ken **Watanabe**

Peter **Milne**

3:00 PM **Free afternoon**  
6:00 PM **The Don Clayton Fest and Rost**  
6:00 PM **Gathering with wine & beer**  
6:30 PM **DDC Rost I**  
7:15 PM **Conference Dinner**  
8:00 PM **DDC Rost II, with Music**  
11:00 PM **End of Day**

#### Thursday, September 8

9:00 AM **A model for the observed positron annihilation emission from the Milky Way**  
9:20 AM **X-ray Lines from Young Supernova Remnants**  
9:35 AM **When Stars Attack: Live Radioactivities as Signatures of Nearby Supernova Explosions**  
9:55 AM **The Galactic Star Formation Rate**  
10:10 AM **Coffee Break**  
10:40 AM **The Cosmic Stellar Birth and Death Rates**  
11:00 AM **The SNIa rate in the local universe**  
11:20 AM **Cosmic gamma-ray background from SNe Ia: Evidence for missing gamma-rays at MeV**  
11:40 AM **An Experimental Perspective on Induced Depopulation of Nuclear Isomers**  
12:00 PM **Lunch**  
2:00 PM  **$^{56}\text{Co}$  Decay Lines and Core-Collapse Supernova Asymmetries**  
2:20 PM **Late Light Curves of Normal Type Ia supernovae.**  
2:30 PM **Neutron Capture Rates on Radioactive Nuclides - DANCE**  
2:40 PM **Extinct Radioactivities in Pre-solar Grains**  
2:40 PM **Locating  $^{44}\text{Ti}$  Nucleosynthesis with STARDUST**  
3:00 PM **Measurements of the radioisotopes  $^{26}\text{Al}$  and  $^{41}\text{Ca}$  in presolar hibonite grains.**  
3:20 PM **Presolar graphite from the Murchison meteorite: Noble gases revisited**  
3:40 PM **Coffee Break**  
4:10 PM **Multi-element isotopic analysis of single presolar SiC grains**  
4:30 PM **Nucleosynthesis of short-lived isotopes in AGB stars: implications for presolar grains**  
5:00 PM **Isotopic Analysis of Presolar Graphite Grains from Orgueil**  
5:20 PM **The origin of short-lived radionuclides**  
5:40 PM **Graphites of supernova origin: Constraints on nucleosynthesis**  
6:00 PM **End of Daytime Program**

Nikos **Prantzos**  
Mark **Leising**  
Brian **Fields**  
Dieter **Hartmann**  
  
John **Beacom**  
Louie **Strigari**  
Kyungjin **Ahn**  
James **Carroll**  
  
Aimee **Hungerford**  
Jessica C. **Lair**  
Rene **Reifarth**

Don **Clayton**  
Ernst **Zinner**  
Sachiko **Amari**  
  
Julia G. **Barzyk**  
Andrew **Davis**  
Manavi **Jadhav**  
Mathieu **Gounelle**  
Kevin **Croat**

#### Friday, September 9

9:00 AM **Astronomical Capabilities and Opportunities**  
9:00 AM **The ACT Concept Study**  
9:20 AM **Gamma-Ray Lenses - Taking a Deeper Look at Sites of Nucleosynthesis**  
9:40 AM **The MEGA Project: Science Goals and Hardware Development**  
9:55 AM **Performance estimate of the MEGA space telescope**  
10:10 AM **Detection method of live  $^{244}\text{Pu}$  by Resonance Ionization Mass Spectrometry**  
10:25 AM **Coffee Break**  
10:55 AM **Nuclear Astrophysics with RHESSI**  
11:10 AM **Using Fluorine Abundances to Probe Core-Collapse Supernova Neutrinos**  
11:25 AM **The Potential for Gamma-Ray Line Observations with the CASTER BH Finder Probe**  
11:40 AM **Nuclear astrophysics experiments with charged particles at LENA**  
11:55 AM **Farewell Remarks**  
12:00 PM **End of Workshop**

Steven **Boggs**  
Cornelia **Wunderer**  
Peter **Bloser**  
Andreas **Zoglauer**  
Avishai **Ofan**  
  
David **Smith**  
Verne **Smith**  
Mark **McConnell**  
Christian **Iliadis**  
Roland **Diehl**

### Posters

Metallicity in the Solar Neighborhood Out to 60pc  
The Clemson University Nuclear Astrophysics Web Resource Page  
Possible Identification of a Metal-Rich Old Moving Group  
Hydrodynamic Simulations of Supernova Ejecta - Molecular Cloud Interactions  
The EXIST Black Hole Finder Probe  
The CASTER Black Hole Finder Probe  
Alternative  $^{26}\text{Al}$  nucleosynthesis  
Oxygen in the Hyades: The Giant-Dwarf Discrepancy Revisited  
Eu isotope measurements in SiC grains collected from Primitive meteorites  
Investigation of the 4/09 keV  $^{44}\text{Ti}$  Line in Cas A  
The ACT Vision Mission Study Simulation Effort  
Constraining Supernova Neutrino Parameters with LiBeB GCE  
How do we mix supernova ejecta to reproduce isotopic ratios of presolar grains  
MEGALib - The Medium Energy Gamma-ray Astronomy Software Library

Roggie **Boone**  
Jason **Brown**  
Abigail **Daane**  
Keith **Davis**  
Jerry **Fishman**  
Mark **McConnell**  
Qui-he **Peng**  
Simon **Schuler**  
Kentaro **Terada**  
Makk **Theiling**  
Cornelia **Wunderer**  
Takashi **Yoshida**  
Takashi **Yoshida**  
Andreas **Zoglauer**