



#### NA04:

# Advanced Theory and Experiments for Nuclear Astrophysics – ATHENA

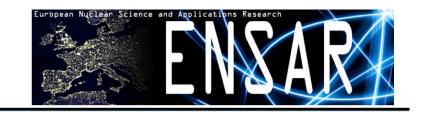
Dr. Kerstin Sonnabend

**ENSAR Town Meeting** 

Warsaw, Poland

June 17th to 20th, 2013





#### **Task 1: Explosive Nuclear Astrophysics**

Phil Woods, Edinburgh, UK Micha Hass, Weizmann Institute, Israel (deputy coordinator)

# Task 2: Reactions at Low Temperatures and on Broad Mass Ranges

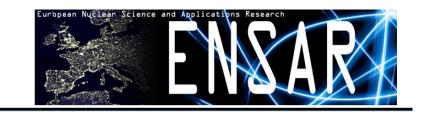
Kerstin Sonnabend, Frankfurt, Germany (coordinator) Sotiris Harrisopulos, Demokritos, Greece

#### Task 3: Nucleosynthesis in Neutron Capture Processes

Claudia Lederer, Frankfurt, Germany René Reifarth, Frankfurt, Germany

#### (Task 4: Nuclear Astrophysics Annual Meeting)





#### **Task 1: Explosive Nuclear Astrophysics**

- 1-1. Key reactions
- 1-2. Key technical developments
- 1-3. Key characteristics of novel detection systems
- 1-4. Key features of nuclear theory
- participants:
  CERN, JYU, GANIL, GSI, MPIC, ATOMKI-HAS, TWI, INFN-LNS, UPC, PSI, UNIBAS, U-Edinburgh, UoY
- overlap to JRA07: THEXO



### **Structure of ATHENA**

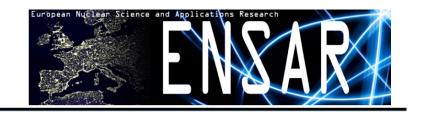


# Task 2: Reactions at Low Temperatures and on Broad Mass Ranges

- 2-1. Increase of synergy of existing laboratories and equipments
- 2-2. Major upgrades for long-term experimental programmes
- 2-3. Reaction rates of heavy-element nucleosynthesis
- participants:

UWIE, ULB, CNRS (IPN Orsay), FZD, TUD, GUF, Uni Köln, NCSRD, ATOMKI-HAS, HEBU, INFN (Napoli, Padova), CFNUL, IFIN-HH, CSIC-Madrid, UGRA, UGEN, UNIBAS





#### Task 3: Nucleosynthesis in Neutron Capture Processes

- 3-1. Support during experimental campaigns at CERN
- 3-2. Support of data analysis and transfer to astrophysically relevant data
- 3-3. Preparation of future neutron sources
- participants:

TUW, UWIE, CUNI, CERN, CEA, FZD, GSI, GUF, NCSRD, NTUA, INFN (Bari, Bologna, LNL), OAR, OAT, ITN, CIEMAT, FAMN, UGRA, UPC, USC, IFIC



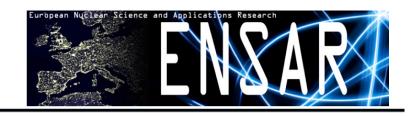
## **Progress of ATHENA**



- Workshop on "p-process: present status and outlook"
  May 25<sup>th</sup> to 27<sup>th</sup>, 2011 @ Istanbul, Turkey
- Summer school on "Nuclear theory and astrophysical applications" July 24<sup>th</sup> to August 2<sup>nd</sup>, 2011 @ Dubna, Russia
- MASCHE Annual Meeting
  November 26<sup>th</sup>, 2013 @ Frankfurt, Germany
- ATHENA workshop on "Prospects in neutron time-of-flight" March 18<sup>th</sup> to 20<sup>th</sup>, 2013 @ Darmstadt, Germany
- Nuclear Physics in Astrophysics VI
  May 19<sup>th</sup> to 24<sup>th</sup>, 2013 @ Lisbon, Portugal



### Plans in future



- ATHENA two-day workshop beginning of December, 2013 @ Brussels, Belgium local organizer: Pierre Descouvement
- ATHENA summary meeting
  May 13<sup>th</sup> to 16<sup>th</sup>, 2014 @ Villa Vigoni, Lake Como, Italy
  - summary session for each task:
    overview talk by task leaders
    contributed talks by participants
  - future session for each task:
    discussion about future collaborations
    possibilities of future funding applications