



# Gaia Research for European Astronomy Training: Rete Europea per lo Sfruttamento Scientifico di Gaia

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Gaia  
Research  
for  
European  
Astronomy  
Training

Initiative from the Gaia ESA project,  
the Gaia Science team, the Gaia  
DPAC

Overall objective of GREAT is to  
build essential scientific cooperation  
across Europe to prepare the wider  
community for the **scientific  
exploitation** of the Gaia mission

Community network to increase  
knowledge and awareness of the  
**science** potential of Gaia



## Science themes

### ❖ Unravelling the Milky Way – from the Galaxy to Asteroids

- Origin, structure and evolution of the Milky Way
- Stellar Astrophysics
- Galactic archaeology
- Star formation and evolution
- Extrasolar-planets
- Solar system
- Fundamental physics

### ❖ Grand challenges

- Distance Scale
- Transient sky

**GREAT ESF Research Network Programme.**  
It provides funding for community proposed activities, such as conferences, workshops, training schools, exchange visits

**Funding: 750 K € (à la carte)**



**GREAT ITN EU-FP7 Initial Training Network**  
involves the training of young researchers in the Scientific exploitation of Gaia data

**Funding: 4,25 M € (0.5 INAF)**





# The GREAT ITN



## ITN structure:

- **13 full nodes**: 12 in Europe (UK, NL, S, E, 2D, CH, B, **Italy**, PL, P, F) plus 1 in China
- 19 associate nodes: 15 academic (of which **3 in Italy**), 3 from the Information Technology industry, plus 1 for ESA
- the network supports the training of 17 Marie Curie Early Stage Research (ESRs), of which **two at INAF nodes**
- GREAT-ITN coordinator N. Walton (IoA, Cambridge, UK)

**The network started on 1 March 2011 and will have a 4 year duration – thus to 28 Feb 2015**



# INAF-Node



Node PI : Gisella Clementini (OABo)

4 INAF sub-nodes : OA Bologna (OABo) - G. Clementini  
OA Padova (OAPd) - A. Vallenari  
OA Napoli (OACN) - M. Marconi  
OA Torino (OATO) - M. Lattanzi

3 Academic nodes : UNiBo - L. Ciotti  
UNiPd - G. Piotto  
UNiTo - A. Diaferio

for a total of about 35-40 researchers from 9 Italian Institutions

2 ESRs, one at OABo and one at OAPd

Total budget: 493 K€  
(343 K€ x ESR salaries)

Current budget: 295 K€

Admin. Support: Annalia Piccioni (OABo)



# The GREAT ITN



## Project organization:

- Structured into 6 main work packages:
  - WP1: management
  - WP2: training
  - WP3: the origin and history of the Milky Way
  - WP4: the stellar constituents of the Milky Way
  - WP5: planetary systems, worlds near and far
  - WP6: grand challenges - distance scale & transient sky (**INAF lead**)
- **INAF ESRs located in science themes WP3 and WP6**
- WP3,4,5,6 leads manage per WP training
- WP2 coordinates cross WP training

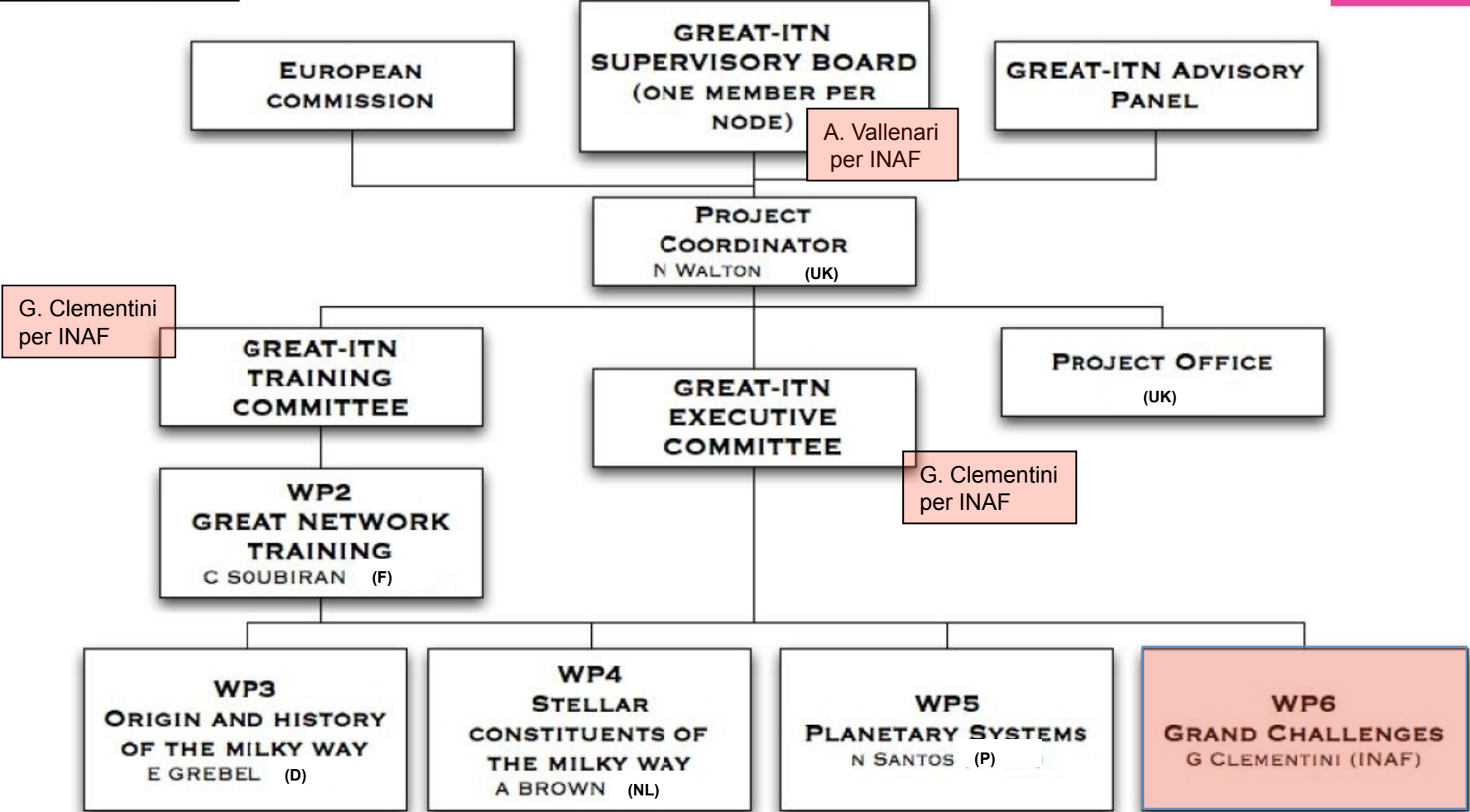




# The GREAT ITN



## Organisational structure:







# The INAF-Node ESRs



WP6 Grand Challenges: Distance Scale and Transients

## **INAF-ESR: Improving the distance scale**

PhD student at UNiBo, Tatiana Muraveva, started on Oct 1<sup>st</sup>, 2011

Supervisors: G. Clementini (INAF-OABo), M. Marconi (INAF-OACn), E. Brocato (INAF-OACI)

WP3 - The Origin and History of the Milky Way

## **INAF-ESR: Open clusters as tracers of the Galactic disk**

PhD student at UNiPd, Tristan Cantat-Gaudin, started on Oct 1<sup>st</sup>, 2011

Supervisor: A. Vallenari (INAF-OAPd)



**Main training events  
involving/organized  
by INAF staff**



**International GREAT-ESF Conference – “The Fundamental Cosmic Distance Scale:  
State of the Art and the Gaia Perspective”**

3-6 May 2011, INAF - Osservatorio Astronomico di Capodimonte, Napoli, Italy  
<http://www.oacn.inaf.it/ESFdistance>

Scientific Organizers: **G. Clementini, M. Marconi, E. Brocato**, W. Gieren, M. Groenewegen,  
**M. Lattanzi**, B. Leibundgut, X. Luri, A. Saha, S. Sakai, C. Turon, A. Walker

**1. PhD school – “ESR Induction: Introduction to the science of Gaia”**

23-27 January 2012, Lorentz Center, Leiden, the Netherlands

Scientific Organizers: A. Brown, **G. Clementini**, E. Grebel, N. Santos, C. Soubiran, N. Walton

**2. PhD School – “Fundamental Cosmic Distance Ladder and Transient Sky”**

School of Astrophysics “Francesco Lucchin” and GREAT ITN

11-15 June 2012, Teramo, Italy

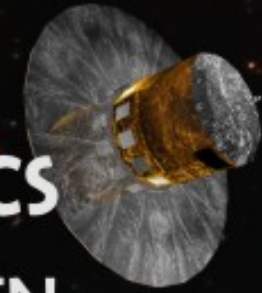
<http://isa2012.oa-teramo.inaf.it>

Scientific Coordinators: **E. Brocato**, B. Leibundgut; Local Organizer: **G. Raimondo**

# International School Of Astrophysics

"Francesco Lucchin" and GREAT-ITN

11-15 June 2012 Teramo, Italy



## Fundamental Cosmic Distance Ladder & Transient Sky

<http://isa2012.oa-teramo.inaf.it>







**Main training events  
involving/organized  
by INAF staff**



**GREAT-ESF Workshop – “The World of Clusters”**  
17-20 (TBC) September 2013, INAF - Osservatorio Astronomico di Padova

Topics

- a. Stellar population in clusters
- b. Clusters and the environment
- c. Clusters as tracers of the galaxy evolution
- d. Star clusters in the surveys pre and post Gaia

Organized by:

**Dr. A. Vallenari** INAF – OAPd

**Dr. A. Bragaglia** INAF – OABo

**Dr. S. Randich** INAF – OAArcetri



## The GREAT ESF RNP



- Proposal to ESF submitted in 2009. It included 90 Institutes from 17 countries (9 INAF). Started in 2010.
- The programme provides financial support for the following activities:
  - Meetings (conferences, workshops, schools) organized either by the programme steering committee or following an open call for proposals
  - Grants for short and exchange visits awarded following an open call for applications
  - Publication of information brochures and leaflets, scientific books, proceedings, etc



# The GREAT ESF RNP



## 16 contributing organizations Management by steering committee

Austria	FWF	T. Lebzelter
Belgium	FRS,FWO	C. Aerts/D. Pourbaix
Czech Republic	ASCR,GACR	J. Durech
Finland	Academy of Finland	K. Muinonen
France	CNRS	F. Mignard
Germany	DFG	E. Grebel
Italy	INAF (*)	S. Randich
Netherlands	NWO	A. Brown
Portugal	FCT	A. Moitinho
Spain	MICINN,CSIC	C. Jordi
Sweden	VR	L. Lindegren
Switzerland	SNF	L. Eyer
UK	SFTC	N. Walton (Chair)
		T. Prusti (observer)

(\*) INAF contribution from nine Observatories





# The GREAT ESF RNP

**E**UROPEAN  
**S**CIENCE  
**F**OUNDATION  
SETTING SCIENCE AGENDAS FOR EUROPE

## INAF

### Contribution from nine observatories

Arcetri (S. Randich)  
Bologna (A. Bragaglia/G. Clementini)  
Catania (A. Lanzafame, A. Frasca)  
Capodimonte (J. Alcalà, M. Marconi)  
Monte Porzio (L. Pulone)  
Padova (A. Vallenari)  
Palermo (G. Micela)  
Teramo (A. Piersimoni/E. Brocato)  
Torino (M. Lattanzi)

**Per finanziare la partecipazione al GREAT-ESF ciascuno dei 9 Osservatori partecipanti investe 1556 €/anno del proprio FFO per un totale di 14000 €/anno per 5 anni.**



## The GREAT ESF RNP



- ESF networking programmes are 'Open'
  - Encouraged to involve the wider community
  - Ideal for the concept of including those that are not co-applicants in other network activities
- Period of call is science over 2010 – 2015
  - Thus, can factor in access to 'early' Gaia data releases
  - Access to Gaia science alert streams
  - Can also consider science programmes requiring preparatory work (theory, simulations, observational)

**All calls published at <http://www.great-esf.eu>  
-Last workshop/schools/exchange deadline June 2013**



# The GREAT ESF RNP



28 supported workshops/conferences/schools so far  
**11 in Italy and/or with INAF involvement in the organization**

**Workshop:** Ground-based, observations and theoretical analysis for the Gaia Science on Open Clusters and Young Associations, **13 – 14 May 2010, Catania (6.7 K€)**

**Workshop:** Gaia Chemo-Dynamical Survey: Survey Science, **2 – 4 November 2010, Nice (Randich)**

**Workshop:** QSO Astrophysics, Fundamental physics, and Astrometric Cosmology in the Gaia era, **6 - 9 June 2011, Porto (Lattanzi, Crosta) (8 K€)**

**Conference:** The Fundamental Cosmic Distance Scale: State of the Art and the Gaia Perspective, **3 – 6 May 2011, INAF - OA Capodimonte, Napoli (16 K€)**



# The GREAT ESF RNP



**Workshop:** Asteroid dynamic and physical studies during and after the Gaia mission, **4-6 May 2011, Pisa (6 K€)**

**Workshop:** The metallicity distribution in the Milky Way discs, **29-31 May 2012, INAF- OA Bologna, Italy (8 K€)**

**Workshop:** 3rd Gaia Science Alerts Workshop, **6-7 Sep 2012, INAF- OA Bologna, Italy (8 K€)**

**Workshop:** Gaia and Exoplanets: GREAT Synergies on the Horizon, **5-7 Nov 2012, Torino, Italy (6 K€)**

Three workshops and one conference for the **Gaia-ESO Survey (41 K€)**

Plus **GREAT plenary meetings**: large involvement of INAF researchers

**Totale contributo da FFO OAs al Feb. 2013: 42.0 K€**

**Totale finanziamenti ricevuti al Feb. 2013: 99.7 K€**



## Spunti di riflessione:

1. criticita'
2. cosa abbiamo imparato
3. cosa dovremmo evitare in futuro
4. come possiamo fare meglio in futuro



Per l'ITN: difficoltà di gestione e di confronto con gli altri partners che hanno strutture diverse. INAF Istituto unico e questo ci penalizza, gli altri si possono presentare anche separati, vedi Germania e hanno dei vantaggi.

Necessità di un supporto autorevole da parte della dirigenza INAF: accanto al lavoro encomiabile di Relint, c'è bisogno che la dirigenza INAF si faccia carico di supportare esplicitamente la partecipazione Italiana a questi progetti. Il contributo per la partecipazione di INAF al GREAT-ESF è stato su base di autotassazione dei singoli Osservatori interessati. Devono esserci dei fondi dedicati appositamente.

I fondi ricevuti per GREAT ITN sono solo un acconto e non saranno sufficienti a coprire le 3 annualità dei 2 ESRs. Il saldo arriverà solo a contratto rendicontato. Chi anticiperà? Dati i tagli di FFO le singole strutture non sono più in grado!

Come fare tesoro dell'esperienza:

1. per un nuovo FP7 ITN su Gaia che abbia come coordinatore un ricercatore INAF?
2. per servire di supporto ad altri colleghi che vogliono imbarcarsi in un FP7 ITN?



THANK YOU