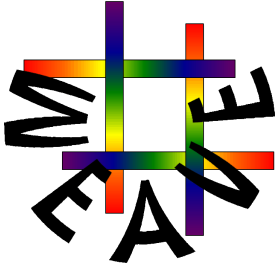


The WEAVE extragalactic surveys

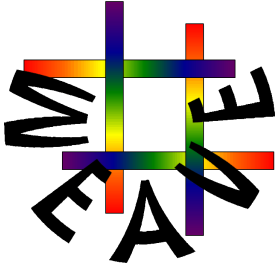


Organization in science teams

- 1) WEAVE-Clusters Science Team
- 2) Galaxy Evolution Science Team
- 3) WEAVE-LOFAR Science Team
- 4) WEAVE-QSO Science Team

The Science Teams define the survey goals, strategy, targets, help with the planning of the general strategy and carry out the scientific analysis.

Participation to any of the science teams is open to all INAF members.



Organization in science teams

1) WEAVE-Clusters Science Team

Lead: J. Alfonso L. Aguerri, IAC

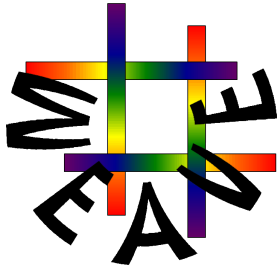
Three surveys:

Nearby galaxy cluster survey (dwarf galaxies)

Infall regions survey ($z=0.04-0.07$, large radii)

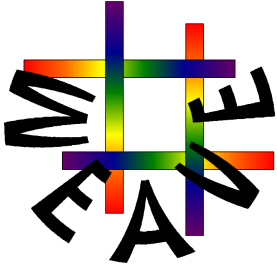
“Cosmological” cluster survey

Amata Mercurio’s talk



WEAVE- Clusters

Name	Role	Affiliation
J. Alfonso L. Aguerri	Team Lead	IAC
Alessandro Boselli		Laboratoire d'Astrophysique de Marseille
Alessia Moretti		INAF-OA Padova
Alexander Fritz		INAF-IASF Milano
Alexandre Vazdekis		IAC
Alfonso Aragón-Salamanca		University of Nottingham
Amata Mercurio		INAF-OA Napoli
Angela Iovino		INAF-OA Brera
Bianca Poggianti		INAF-OA Padova
C. Jakob Walcher		AIP
Carlos Lopez Sanjuan		Centro de Estudios de Física del Cosmos de Aragón
Casiana Muñoz Tuñón		IAC
Christopher Collins		Liverpool John Moores University
Daniela Bettoni		INAF-OA Padova
David Carter		Liverpool John Moores University
Elena Dalla Bontá		University of Padova
Elena Zucca		INAF-OA Bologna
Enrico Held		INAF-OA Padova
Frazer Pearce		University of Nottingham
Gianni Fasano		INAF-OA Padova
Ignacio Trujillo		IAC
Irene Agulli		IAC
Jairo Méndez Abreu		University of St Andrews
Javier Gorgas		Universidad Complutense de Madrid
Jesús Falcón Barroso		IAC
Johan Knapen		IAC
Jorge Iglesias Páramo		IAA
Jose Alberto Rubiño		IAC
José M. Vilchez		IAA
Jose Miguel Rodriguez Espinosa		IAC
Marc Balcells		IAC
Marc Huertas-Company		GEPI, Observatoire de Paris
Meghan Gray		University of Nottingham
Rafael Barrena Delgado		IAC
Reynier Peletier		Rijksuniversiteit Groningen
Russell Smith		Durham University
Sandro Bardelli		INAF-OA Bologna
Sean McGee		University of Birmingham
Scott Trager		Rijksuniversiteit Groningen
Stefano Zarattini		INAF-OA Trieste
Vasiliki Patropoulou		INAF-OA Brera



Organization in science teams

2) Galaxy evolution science team

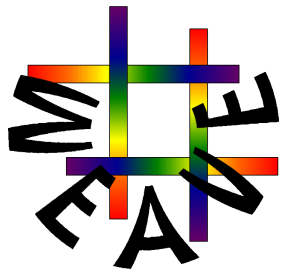
Lead: Bianca M. Poggianti, INAF-OAPd

Two surveys:

StePS (Stellar population surveys, co-lead A. Iovino, INAF-OABrera)

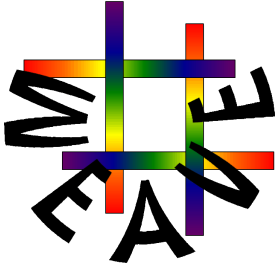
WEAVE-Apertif (M. Verheijen, Kapteyn Instituut, Groningen, NL)

also Angela Iovino's talk



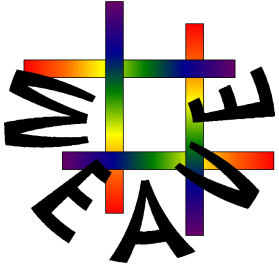
WEAVE-StePS

Name	Role	Affiliation
Bianca Poggianti	Team Lead, Science Case & Survey Plan	INAF-OA Padova
Adriana Gargiulo		INAF Bologna
Alessandro Pizzella	Sky Subtraction & Calibration	University of Padova
Alexandra (Sascha) Fritz		INAF-IASF Milano
Amata Mercurio	Survey Strategy, Sky Subtraction & Calibration, Science Case & Survey Plan	INAF-OA Napoli
Angela Iovino	Co-lead, Survey Strategy, Science Case & Survey Plan	INAF-Osservatorio Astronomico di Brera
Anna Gallazzi		INAF-OA Firenze
C. Jakob Walcher		AIP
Chris Haines		INAF-OA Brera
Chris Weidner		IAC
Crescenzo Tortora		Rijksuniversiteit Groningen
Daniela Vergani		INAF-IASF Bologna
Elena Zucca		INAF-OA Bologna
Francesco La Barbera	Sky Subtraction & Calibration	INAF-OA Napoli
Ignacio Ferreras		University College London
Johan Knapen		IAC
Jorge Iglesias Paramo		IAA
Lorenzo Morelli	APS Connection, Sky Subtraction & Calibration	University of Padova
Lucia Pozzetti	Survey Strategy, APS Connection, Sky Subtraction & Calibration, Science Case & Survey Plan	INAF-OA Bologna
Marc Balcells		IAC
Marcella Longhetti	Sky Subtraction & Calibration	INAF-OA Brera
Margherita Talia		Università di Bologna
Micol Bolzonella	Survey Strategy	INAF-OA Bologna
Patricia Sánchez Blázquez		Universidad Autónoma de Madrid
Nicola Napolitano		INAF-OA Napoli
Rosa Gonzalez Delgado	Sky Subtraction & Calibration	IAA
Ruben Garcia Benito		IAA
Sandro Bardelli		INAF-OA Bologna
Sean McGee		University of Birmingham
Scott Tragar		Rijksuniversiteit Groningen
Stefano Zibetti	APS Connection, Sky Subtraction & Calibration	INAF-OA Firenze



WEAVE-Apertif

Name	Role	Affiliation
<i>Marc Verheijen</i>	<i>Team Lead</i>	Rijksuniversiteit Groningen
Albert Bosma		Laboratoire d'Astrophysique de Marseille
C. Jakob Walcher		AIP
Lia Athanassoula		Laboratoire d'Astrophysique de Marseille



Organization in science teams

3) WEAVE-LOFAR

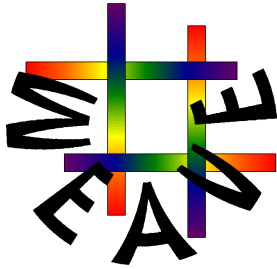
Lead: Dan Smith, Univ. Hertfordshire, UK

Two layers: Wide, Mid, Deep

Isabella Prandoni's talk

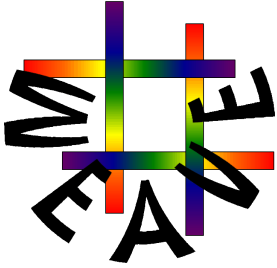
4) WEAVE-QSO

Lead: Matthew Pieri, LAM Marseille, France



WEAVE-LOFAR

Name	Role	Affiliation
Dan Smith	Team Lead	University of Hertfordshire
Aavush Saxena		Leiden University
Alastair Edge		Durham University
Barbara Lo Faro		Marseille
Catherine Hale		Oxford
Chiara Ferrari		Observatoire Côte d'Azur , Nice
Chris Conzelice		University of Nottingham
Claudia Scoccola		IAC
Clive Tadhunter		University of Sheffield
Cyril Tasse		GEPI, Observatoire de Paris
David Bacon		University of Portsmouth
David Nisbet		University of Edinburgh
Eleni Kalfountzou		ESAC
Elizabeth Mahony		ASTRON
Emanuela Orrù		ASTRON
Francesco de Gasperis		Leiden University
Gavin Dalton		University of Oxford/RAL Spac
George Milev		Leiden University
Glenn White		OU
Gulay Gurkan		University of Hertfordshire
Huub Röttgering	<i>OC member</i>	Leiden University
Isabella Prandoni		INAF
Jim Geach		University of Hertfordshire
Jose Sabater Montes		ROE, Edinburgh
Josh Albert		Leiden University
Ken Duncan		Leiden University
Kristen Coppin		University of Hertfordshire
Leah Morabito		Leiden University
Loretta Dunne		Cardiff/Edinburgh
Manuela Madiocchetti		INAF-IFSI Roma
Martin Hardcastle		University of Hertfordshire
Matt Jarvis	<i>OC member</i>	University of Oxford
Michael Wise		ASTRON
Moutse Villar-Martin		CSIC, Spain
Nancy Hine		University of Hertfordshire
Natasha Maddox		ASTRON
Nina Hatch		University of Nottingham
Paul van der Werf		Leiden University
Peter Hatfield		University of Oxford
<i>Philip Best</i>	<i>OC member</i>	University of Edinburgh
Rafaella Morganti		ASTRON
Rebecca Bowler		University of Oxford
Robert Nichol		University of Portsmouth
Sean McGee		University of Birmingham
Seb Oliver		University of Sussex
Steven Bamford		University of Nottingham



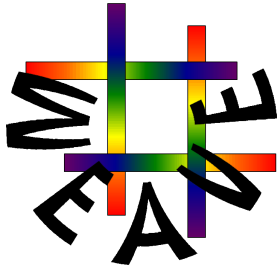
WEAVE-APERTIF

Apertif is an upgrade of the Westerbork Radio Synthesis Telescope that will allow for efficient neutral hydrogen and radio-continuum surveys. 8deg^2 FOV at $15'' \times 15'' / \text{sin}\delta$, increasing the WRST speed by a factor 15.

Two-tiered survey in synergy with WEAVE: a medium-deep survey of 300 deg^2 with $10 \times 12\text{hr}$ per pointing, and a shallow survey of 3000 deg^2 with $1 \times 12\text{hr}$ per pointing.

The APERTIF surveys will provide redshifts and the neutral gas content, morphologies, dynamics, and dynamical masses at the resolution described above. Furthermore, APERTIF will also detect and measure HI absorption against radio-loud AGN yielding information on gas accretion and outflows, provide spatially-resolved, extinction-free star-formation maps from the radio continuum emission, and identify OH megamasers as locations of intense star formation.

Apertif will provide WEAVE targets selected by their neutral gas content



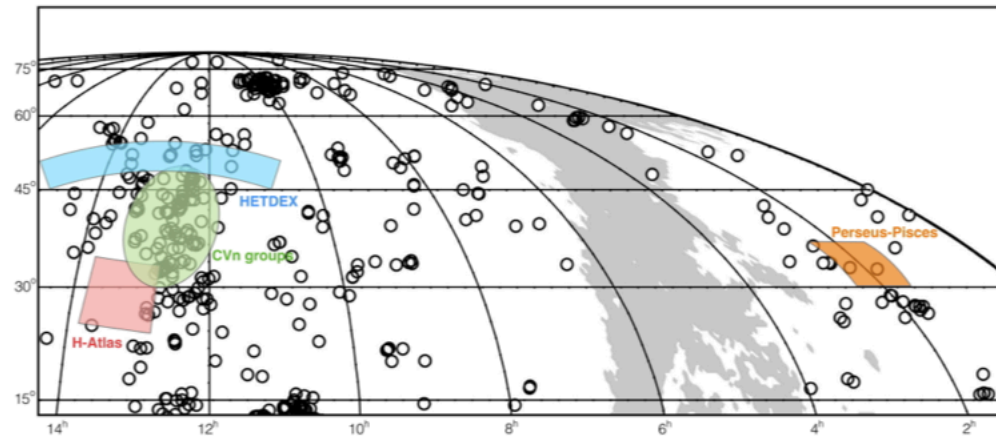
WEAVE-APERTIF

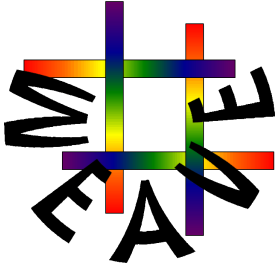
Three primary science cases for WEAVE-Apertif:

1. Identify causes of bimodality of local galaxies and environ. dependence
2. Mass budget of disc galaxies from spatially resolved structure and kinematics
3. Determine internal processes driving morph. evolution of disc galaxies

Three tiers:

- LIFU of ~ 5000 Apertif resolved galaxies
- LIFU of ~ 50 LSB galaxies + mIFU of high surf.bright. galaxies at $z \sim 0.25$
- 4 nights/galaxy with LIFU for ~ 10 nearby, large galaxies





StePS: Stellar Populations at intermediate redshift survey

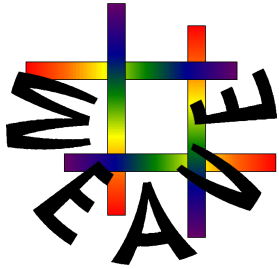
A WEAVE MOS survey of $\sim 30,000$ galaxies at $z=0.3-0.7$.

High S/N spectra (>15): at least 7 hours of integration, and up to the double.

I-band +photo-z selection.

Over 3 or 4 of the best studied extragalactic fields with excellent ancillary data, over about 25 sq. deg.

An allocation of 300,000 fibre hours (equivalent of ~ 45 nights if 7hrs/night, 950 fibres/hour) over 5 years.



StePS: Stellar Populations at intermediate redshift survey

StePS will be the *first* good resolution (1A) and high S/N (>15) large survey at these redshifts able to

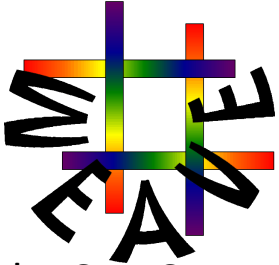
-- study in detail stellar ages, stellar and gas metallicities, dust attenuation, gas kinematics, stellar velocity dispersions

and

-- their relation with galaxy mass, morphology and environment.

Only the SDSS, at $z \sim 0.1$, has attained such a deep and detailed overview of galaxy properties. StePS will extend this out to 7 Gyr of look-back time.

It is the WEAVE survey with the largest Italian component – Italians are world-leading experts in the field of stellar populations, and this program capitalizes on their expertise.



At what stage are we now

(I take StePS as example)

The StePS team has:

- Written down the scientific goals of the survey into the WEAVE Science Case Document (Poggianti).
- Developed a survey strategy, described in the WEAVE Survey Plan document (Iovino). (Revised versions of these documents are due June 15 2016.)
- Provided preliminary target lists to the Survey Plan Team, to initiate the process that make all the surveys become one (Iovino).
- Carried out a detailed study of the needs for sky subtraction and calibration and produced the relevant documentation (Longhetti)

Members of the StePS team are participating in

- the Survey Plan Team (Iovino, Mercurio)
- the WAS-ST group that serves as a link with the Archive group (Morelli)
- the APS-ST group that serves as a link with the Advanced Product Team (Zibetti, Morelli)